# JOHNS HOPKINS UNIVERSITY CIRCULARS

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## PROGRAMMES FOR 1891-92.

The following courses in literature and science are offered for the academic year which begins October 1, 1891. They are open to properly qualified young men, according to conditions varying somewhat in each department. The Annual Register, giving full statements as to the regulations and work of the University, will be sent on application.

D. C. GILMAN,
*President of the Johns Hopkins University.*

UNIVERSITY OF TORONTO LIBRARY

**H. B. ADAMS**, *Professor of American and Institutional History*,
- (*a*) will conduct the Seminary of History and Politics.
- (*b*) History of the Nineteenth Century, Roman Politics, French Absolutism and Revolution.
- (*c*) will direct the undergraduate courses in History, with assistance.

**M. BLOOMFIELD**, *Professor of Sanskrit and Comparative Philology*,
- (*a*) Linguistic Science and Comparative Grammar.
- (*b*) Indo-Iranian Languages.

**W. K. BROOKS**, *Professor of Animal Morphology*,
- (*a*) will direct the Laboratory work in Morphology.
- (*b*) will lecture on Animal Morphology, Osteology and Zoölogy.
- (*c*) will conduct the Marine Laboratory.

**B. L. GILDERSLEEVE**, *Professor of Greek*,
- (*a*) will direct the Greek Seminary (*Thukydides and Greek Historians*).
- (*b*) will conduct a course of Practical Exercises in Greek.
- (*c*) will lecture on Greek Syntax.
- (*d*) will conduct a course in Hermeneutics and Criticism.

**E. H. GRIFFIN**, *Professor of the History of Philosophy*,
- (*a*) will give advanced courses in Modern Philosophy and Ethics.
- (*b*) will conduct undergraduate courses in Psychology and Ethics.

**P. HAUPT**, *Professor of Semitic Languages*,
- (*a*) will conduct courses in Hebrew, Biblical Aramean, and Arabic.
- (*b*) will conduct courses in Assyrian, Babylonian, and Sumero-Akkadian.

**H. M. HURD**, *Professor of Psychiatry*,
will lecture to physicians in the Johns Hopkins Hospital.

**H. A. KELLY**, *Professor of Gynecology*,
will lecture to physicians in the Johns Hopkins Hospital.

**H. N. MARTIN**, *Professor of Biology*,
- (*a*) will direct the Laboratory work in Biology.
- (*b*) will lecture on Animal Physiology and Animal Histology to advanced students.
- (*c*) General Biology, Vertebrate Histology, Animal Physiology.

**SIMON NEWCOMB**, *Professor of Mathematics and Astronomy*,
- (*a*) will have general direction of the courses in Mathematics and Astronomy.
- (*b*) will conduct courses in Practical, Spherical, and Theoretical Astronomy, etc.

**WM. OSLER**, *Professor of Medicine*,
will lecture to physicians in the Johns Hopkins Hospital.

**IRA REMSEN**, *Professor of Chemistry*,
- (*a*) will direct the Laboratory work in Chemistry.
- (*b*) will lecture on Theoretical Chemistry.
- (*c*) General Chemistry, Chemistry of Carbon Compounds.

**H. A. ROWLAND**, *Professor of Physics*,
- (*a*) will direct the work of the Physical Laboratory.
- (*b*) will lecture on Thermo-Dynamics, Heat Conduction, and Physical Optics.

**W. H. WELCH**, *Professor of Pathology*,
- (*a*) will direct the work of the Pathological Laboratory.
- (*b*) Courses in Pathology and Bacteriology.

**J. W. BRIGHT**, *Associate Professor of English Philology*,
- (*a*) English Seminary.
- (*b*) Anglo-Saxon Versification, Middle English, English Inflections, Paleography, etc.

**WM. HAND BROWNE**, *Associate Professor of English Literature*,
will conduct courses in English Literature and Early Scottish Literature.

**W. T. COUNCILMAN**, *Associate Professor of Anatomy*,
will assist in the work of the Pathological Laboratory.

**T. CRAIG**, *Associate Professor of Mathematics*,
- (*a*) Elliptic Functions, Theory of Functions, and Linear Differential Equations.
- (*b*) Partial Differential Equations, Calculus of Variations.
- (*c*) Differential Equations.

**L. DUNCAN**, *Associate Professor of Electricity*,
will conduct courses in Electrical Engineering.

**A. M. ELLIOTT**, *Associate Professor of Romance Languages*,
will give advanced courses in the Romance Languages, including Linguistic Ethnography, French and Italian Dialects, Popular Latin, General Phonetics, Seminary Work, etc.

**R. T. ELY**, *Associate Professor of Political Economy*,
(*a*) General Economics, Special Economics, Economic Conferences.
(*b*) Introduction to Political Economy.

**G. H. EMMOTT**, *Associate Professor of Logic and Lecturer on Roman Law*,
(*a*) Roman Law and Roman Institutions.
(*b*) Undergraduate courses in English Constitution and in Logic.

**W. S. HALSTED**, *Associate Professor of Surgery*,
will lecture to physicians in the Johns Hopkins Hospital.

**H. N. MORSE**, *Associate Professor of Chemistry*,
(*a*) will assist in directing the Laboratory work in Chemistry.
(*b*) will lecture on Analytical Methods and on Inorganic Chemistry.

**E. H. SPIEKER**, *Associate Professor of Latin and Greek*,
(*a*) Andokides, Homer, Euripides.
(*b*) Plato, Aischylos, Sophokles.
(*c*) Greek Literature and Composition.

**MINTON WARREN**, *Associate Professor of Latin*,
(*a*) will conduct the Latin Seminary (*Vergil*).
(*b*) will lecture on Roman Epic Poetry, will read Macrobius.
(*c*) will lecture on Historical Latin Grammar.
(*d*) Plautus and Terence, Tacitus.

**G. H. WILLIAMS**, *Associate Professor of Inorganic Geology*,
(*a*) will direct the Laboratory work in Mineralogy and Petrography.
(*b*) will lecture on General Mineralogy and on Microscopical Petrography.

**HENRY WOOD**, *Associate Professor of German*,
(*a*) will direct the Teutonic Seminary.
(*b*) will give advanced courses in Old High German, Middle High German, Gothic, German Literature, etc.
(*c*) will direct, with assistance, undergraduate courses in German.

**C. ADLER**, *Associate in Semitic Languages*,
will conduct courses in Semitic Philology.

**J. S. AMES**, *Associate in Physics*,
(*a*) will conduct the undergraduate courses in General Physics.
(*b*) will lecture on the theory and use of the Spectroscope.
(*c*) will conduct the Physical Seminary for advanced students.

**E. A. ANDREWS**, *Associate in Biology*,
(*a*) will lecture on General Biology, Mammalian Anatomy and Embryology.
(*b*) will assist in the Laboratory work in Biology.

**C. H. CHAPMAN**, *Associate in Mathematics*,
(*a*) Quaternions, Modern Higher Algebra, Higher Plane Curves, Transformation Groups.
(*b*) Differential and Integral Calculus, Determinants, etc.

**W. B. CLARK**, *Associate in Palaeontology*,
(*a*) will direct the Laboratory work in Palaeontology.
(*b*) General Geology, Palaeontology, and Physical Geography.

**HERMANN S. HERING**, *Associate in Electrical Engineering*,
Courses in Electrical Engineering.

**M. D. LEARNED**, *Associate in German*,
(*a*) Middle High German, Heldenbuch, etc.
(*b*) Undergraduate courses in German.

**J. E. MATZKE**, *Associate in Romance Languages*,
(*a*) Special courses in Italian, Provençal, Old French, etc.
(*b*) Undergraduate courses in French.

**EDWARD RENOUF**, *Associate in Chemistry*,
(*a*) will assist in the Laboratory work in Chemistry.
(*b*) will lecture on Inorganic Chemistry.

**W. S. ALDRICH**, *Instructor in Drawing*,
Courses in Drawing.

**W. M. ARNOLT**, *Fellow by Courtesy*,
Courses on the New Testament, etc.

**W. W. BADEN**, *Fellow*,
History of Vedic Literature, elementary course in Sanskrit.

**B. W. BARTON**, *Instructor in Botany*,
Plant Analysis and the Elements of Botany.

**G. P. DREYER**, *Senior Demonstrator of Physiology*,
will assist in the Laboratory work in Biology.

**A. GUDEMAN**, *Fellow by Courtesy*,
Sources of Greek History, Aristotle's Poetics, Longinus on the Sublime, Cicero's de Legibus.

**C. JOHNSTON, JR.**, *Instructor in Semitic Languages*,
Courses in Semitic Philology.

**DAVID KINLEY**, *Assistant in History*,
Undergraduate courses in History.

**A. J. LEON**, *Assistant in Semitic Languages*,
Courses in Semitic Philology.

**E. S. LEWIS**, *Assistant in Romance Languages*,
Courses in French Phonetics and Old French.

**C. C. MARDEN**, *Assistant in Romance Languages*,
Courses in French and Spanish.

**G. H. NUTTALL**, *Assistant in Pathology*,
will assist in the work of the Pathological Laboratory.

**C. L. POOR**, *Instructor in Mathematics*,
Undergraduate courses in Mathematics.

**J. D. PRINCE**, *Fellow*,
Courses in Semitic Philology.

**W. W. RANDALL**, *Assistant in Chemistry*,
will assist in the work of the Chemical Laboratory.

**H. SCHOENFELD**, *Instructor in German*,
Undergraduate courses in German.

**W. A. SCOTT**, *Assistant in History*,
Undergraduate courses in History.

**C. A. SMITH**, *Assistant in English*,
Undergraduate courses in English.

**K. W. SMITH**, *Instructor in Latin*,
(*a*) Roman Epic Poets after Vergil.
(*b*) Undergraduate courses in Latin.

**W. S. SYMINGTON**, *Assistant in Romance Languages*,
Undergraduate courses in French.

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**PROFESSOR R. C. JEBB**, of Cambridge, England, *Percy Turnbull Lecturer*,
will give the second course of lectures on the Turnbull foundation.

**PROFESSOR C. T. WINCHESTER**, of Wesleyan University,
will give a second course of lectures on the Donovan foundation, on English Poets from 1789 to 1832.

**PROFESSOR H. C. ADAMS**, of the University of Michigan,
a course of lectures on Economics.

**DR. E. R. L. GOULD**, of the U. S. Department of Labor,
ten lectures on Social Science in Europe.

**HON. JOHN A. KASSON**, of Washington, D. C.,
ten lectures on Diplomacy.

**JAMES SCHOULER**, of Boston,
ten lectures on American Political History.

**DR. ALBERT SHAW**, of New York,
a course of lectures on Municipal and Social Problems.

**PROFESSOR WOODROW WILSON**, of Princeton College,
twenty-five lectures on Administration and Public Law.

## MATHEMATICS.

### Graduate Courses.

Professor Newcomb's courses are announced under the heading of Astronomy, to which the student is referred.

Dr. Craig offers the following courses:

1. Elliptic Functions.
   *Twice weekly, through the year.*
   Authors: Jordan, Halphen, and others.
2. Theory of Functions and Linear Differential Equations.
   *Three times weekly, through the year.*
   Authors: Hermite, Weierstrass, Poincaré, Craig, and others.
3. Partial Differential Equations.
   *Three times weekly, first half-year.*
   Author: principally Goursat.
4. Calculus of Variations.
   *Twice weekly till December* 1.
   Authors: Moigno and Jordan.
5. An announcement of this course, which is to be in the second half-year, will be given later.

Dr. Chapman offers the following courses:

1. Quaternions.
   *Three hours weekly till January* 1.
   Authors: Tait, Hardy, and others.
2. Modern Higher Algebra.
   *Two hours weekly, first half-year.*
   Authors: Salmon, and Clebsch.
3. Higher Plane Curves.
   *Two hours weekly, second half-year.*
   Author: Salmon.
4. Lie's Theory of Transformation Groups.
   *Three hours weekly, from January* 1.

### Undergraduate Courses.

#### FIRST YEAR.

Analytic Geometry.
*Daily, till about December* 10. Mr. Poor.

Essentials of an Elementary Course in Theory of Equations.
*Daily, for two weeks.* Mr. Poor.

Differential and Integral Calculus.
*Daily, January* 1 *to end of year.* Dr. Chapman.

#### SECOND YEAR.

Differential and Integral Calculus (Special Topics).
*Twice weekly, till December* 1. Dr. Chapman.

Differential Equations.
*Twice weekly, December* 1 *to end of year.* Dr. Craig.

Determinants and Elementary Theory of Equations.
*Three times weekly, till December* 1. Dr. Chapman.

Modern Analytic Geometry of Two Dimensions.
*Three times weekly, December* 1 *to February* 1. Mr. Poor.

Analytic Geometry of Three Dimensions.
*Three times weekly, February* 1 *to end of year.* Mr. Poor.

Trigonometry and Elementary Analytic Geometry.
*Three times weekly, through the year.* Mr. Poor.

## ASTRONOMY.

The instruction in Astronomy is given by Professor Simon Newcomb, and by assistants working under his direction. The courses include a study of the various branches of the science, illustrated and enforced by practical exercises, and by original work so far as the time at the disposal of the student will permit it. The work taken by a student depends very largely on whether he is pursuing Astronomy as a principal or as a subsidiary subject. As a general rule those who pursue it with the latter object take up but a single branch: spherical and practical astronomy, when their work lies in the direction of physical or other research requiring the use of instruments; celestial mechanics, when it lies in the direction of mathematics; historical and descriptive astronomy, when only the teaching of general astronomy is in view.

For training students in the use of instruments the University has erected a small students' working observatory and supplied it with the following instruments:

An equatorial telescope of 9½ inches aperture, with clock-work and filar micrometer;

A meridian circle of 3 inches aperture, with circles 2 feet in diameter reading to seconds;

A small meridian transit instrument;

A reflecting circle by Pistor & Martins;

An astronomical theodolite, and several other small instruments.

During the year 1891–92, the courses are intended to cover a wider range of individual subjects than usual, with especial reference to the needs of the first year's students, as well as of advanced students engaged in completing and reviewing their work. The details of each course, and the hours devoted to it, will be determined by the number and needs of the students. The courses are, however, expected to conform closely to the following outline. They will be given by Professor Newcomb or by assistants working under his direction.

1. Practical and Spherical Astronomy with exercises in the use of the instruments.

The leading subjects of this course will be the use of the transit instrument and meridian circle in the determination of time, latitude, right-ascension and declination, the reduction of observations generally, the construction and use of the Ephemeris; precession, nutation and aberration and their application to the reduction of places of the fixed stars.

This course will extend through the year.

2. Theory of the Telescope and other optical Instruments.

This subject includes the aberration of lenses, the theory of the achromatic objective and the general laws of telescopic vision.

3. Theoretical Astronomy, embracing especially the computation of orbits.
4. The Method of Least Squares, and its application to the establishment or testing of conclusions.
5. History and Literature of Astronomy.

It is essential that students taking the courses in astronomy should be well prepared in the subjects preliminary to such courses. These are principally mathematics and elementary astronomy. In the former the student should be master of the usual college course, including the elements of solid analytic geometry and of the differential and integral calculus. He should be especially familiar with spherical trigonometry and with logarithmic computation. In astronomy he is expected to have mastered the elements of the subject before commencing the university course. These include an outline of the doctrine of the sphere, of the relation of mean and sidereal time, and of descriptive astronomy generally. What is most essential may be found in so much of Chapters I, III and IV of Newcomb and Holden's Astronomy (large edition) as is printed in large type; but it is desirable that the student should have been quite through this or some similar book.

## PHYSICS.

(Including Electrical Engineering.)

The courses in Physics are designed (1) for those students prepared for advanced work who wish to make Physics a specialty, (2) for graduate and special students who wish to extend their knowledge of Physics, and for all who take it as a part of their regular undergraduate course, (3) for those who wish to make Electricity a specialty.

Graduates and others who wish to pursue the advanced courses and who have not already had the equivalent of the collegiate courses, will take as much of them as may appear desirable.

### Advanced Courses.

*Lectures.*

Professor Rowland:

Thermodynamics, Heat Conduction, and Physical Optics.
*Four times weekly, through the year.*

These lectures constitute one-half of a complete course, extending through two years. The other half consists of lectures on Electricity and Magnetism. The lectures develop fully the mathematical treatment of the subjects, and to follow them the student should have sufficient mathematical knowledge to read such authors as Maxwell, Thomson, Stokes, Green, and Fourier.

Dr. Ames:

Theory and use of the Spectroscope.
*Twice weekly, second half-year.*

Physical Seminary.
*Weekly, through the year.*

*Laboratory Work.*

Advanced students are expected to give as much of their time as possible to laboratory work. This consists at first in carrying out experiments which familiarize the student with the use of instruments for exact measurement and with experimental methods. When sufficient experience of this kind has been acquired, the student undertakes, under the guidance of the instructors, some research designed to be of permanent value.

*Journal Meeting.*

All advanced students are expected to meet with the instructors once a week for the reading and discussion of the current physical journals.

The following journals are regularly reported upon in this way: The London, Edinburgh, and Dublin Philosophical Magazine, The American Journal of Science, Wiedemann's Annalen and Beiblätter, Zeitschrift für physikalische Chemie, Journal de Physique, Annales de Chimie et de Physique, Exner's Repertorium, Nature, Engineering, Comptes Rendus, London Electrician, Electrical World, Journal of Franklin Institute, Cambridge Philosophical Transactions, also the proceedings and transactions of various societies.

### Collegiate Courses.

These courses are adapted to undergraduates and to those graduate students who wish to extend their knowledge of Physics but are not prepared for more advanced work.

Two years' work is required of those undergraduates who take Physics as one of their elective studies, while only one year is necessary for those who take it as a subsidiary subject for the degree of Bachelor of Arts.

Laboratory work accompanies the lectures and recitations throughout the course, the design of this work being to illustrate the subject as it is studied, to impress its principles, and to give clear ideas, rather than to be merely an exercise in manipulation. But some knowledge of methods is also attained, so that in the second year problems requiring more experimental skill are given.

*First Year (Minor) Course.*

This course does not assume that the student has had any previous acquaintance with Physics, but a knowledge of Plane Trigonometry and the use of logarithms is required.

1. Elementary Mechanics, Heat, Electricity and Magnetism, Sound, and Light.
*Lectures and recitations daily, through the year.* Dr. Ames.

2. Laboratory work, consisting of simple experimental problems supplementing the class-room work.
*Three hours weekly, through the year.*

*Second Year (Major) Course.*

This course is designed to meet the wants of both graduates and undergraduates who have already taken either the first year's course or its equivalent, and who wish to pursue further their physical studies. A working knowledge of Analytic Geometry and Calculus is required for admission to this course. The year's work consists of:

1. Lectures and recitations on the following subjects:

Dynamics, beginning with the study of the particle and extending to some of the simpler problems in the motion of a rigid body.
Elementary Thermodynamics, based on Maxwell's Theory of Heat.
Electricity and Magnetism.
Sound.
Wave Theory of Light, as treated in Glazebrook's Physical Optics.
*Daily, through the year.* Dr. Ames.

2. Laboratory Work.
*Four hours weekly, through the year.*

The laboratory work includes problems that present more experimental difficulties than those undertaken during the first year, or that involve more mathematical knowledge for their complete discussion, written reports being required as in the first year's course. During the year special problems are assigned to the students which they are expected to work out in a complete manner, taking necessarily more time than is required for the ordinary problems of the course.

### Electrical Engineering.

Provision is made for the instruction of undergraduate, special, and graduate students.

*Undergraduate Students.*—Undergraduate students who pass the matriculation examination may take the Physical-Mathematical course named below, which leads to the degree of Bachelor of Arts. After the completion of their undergraduate work, they may take the two years' course in Electrical Engineering, thus making a course of five years in all.

In the Physical-Mathematical course (preparatory to Electrical Engineering), Mathematics and Physics are each studied for two years, Chemistry is studied for one year, while Physical Geography, History, English, French, German, Logic, Psychology, and Ethics are also included, together with Drawing, Physical Culture, and the Theory of Accounts.

*Special Students.*—The entrance examinations for special students include:

English.
Mathematics (as required for matriculation).
French or German (as required in the first division of the matriculation examination).
Elementary Science.
United States History.

The first year's work of special students is usually in Mathematics, Physics, and Drawing, preparatory to the course in Electrical Engineering.

*Graduate Students.*—Graduates and advanced students are not examined for admission, but must present their certificates or diplomas.

### Course in Electrical Engineering.

Provision is made for practical and theoretical instruction in Applied Electricity, Applied Mechanics, Machine Design, and Mechanical Engineering. The instructors are Associate Professor Louis Duncan, Mr. Hermann S. Hering, M. E., and Mr. W. S. Aldrich, M. E.

Students who follow this course are expected to have had a good general education, to be able to read French or German, and to be acquainted with mathematics through the differential and integral calculus. The work extends through two years. A certificate is given to those who complete the course.

#### *First Year.*

*First Term.* Applied Electricity.
Lectures and examples on so much of the physical and mathematical theory of electricity as is considered useful for application.
Principles of Mechanics.
*Lectures and recitations.*
Mechanical Drawing.
Laboratory Work in Electricity.

*Second Term.* Applied Electricity. (*Continued*).
Applied Mechanics.
Strength of materials. Kinematics and dynamics of machines, etc.
Mechanical Drawing.
Laboratory Work in Electricity.

#### *Second Year.*

*First Term.* Applied Electricity. (*Continued*).
Theory and design of dynamos and motors. Transmission of energy.
Principles of Mechanism and Prime Motors.
Mechanical Drawing.
Laboratory Work in Electricity.
Experimental Work in Mechanics.

*Second Term.* Applied Electricity. (*Continued*).
Electric light systems, etc. Alternating current apparatus. Telegraph, telephone, etc.
Machine Design.
Mechanical Drawing.
Laboratory Work in Electricity.
Experimental Work in Mechanics.

The work in the electrical laboratory will include instruction in methods of measurement, the testing of apparatus, and original research. The laboratory is open from 9 a. m. to 5 p. m., and students are expected to spend all of their available time, not occupied in lectures and recitations, in experimental work.

## CHEMISTRY.

The courses in Chemistry are intended to meet the wants (1) of graduate students who make Chemistry their specialty, or who select it as one of their subordinate subjects for the degree of Doctor of Philosophy; (2) of undergraduate students who study Chemistry for general training; (3) of special students, who, for good reasons have neither received a bachelor's degree nor matriculated at this University. The first and second years' courses cover the ground of General Chemistry, as far as it is possible to do so in the time occupied. Together they form the full course designed for undergraduates. Graduates and special students who have not done an equivalent amount of work will follow such parts of these courses as may seem desirable.

The Chemical Laboratory, which was enlarged last year, is well equipped and will conveniently accommodate about two hundred students

### Advanced Work.

#### *Laboratory.*

Under the direction of Professor Remsen and Dr. Morse. *Daily, except Saturday, from 9 a. m. to 5 p. m.*

The work will consist in a thorough study of analytical methods, making difficult and typical preparations especially of compounds of carbon, and in carrying on investigations on assigned topics.

#### *Lectures.*

(*a*) Theoretical Chemistry, by Professor Remsen. *Twice weekly.*

(*b*) Select Analytical Methods, by Dr. Morse.

(*c*) Advanced Inorganic Chemistry, by Dr. Renouf. *Once weekly.*

(*d*) Special Topics, under the direction of the Professor of Chemistry, by the Fellows and other advanced workers. *From fifteen to twenty lectures, second half-year.*

This work, while serving to familiarize students with chemical literature, is intended to aid them in acquiring the art of presenting subjects in the form of lectures before audiences. All those who intend to become teachers of Chemistry are expected to take active part in the work.

(*e*) Journal Meetings.—The instructors and advanced students will meet twice weekly for the purpose of hearing reports on the principal articles contained in the journals of Chemistry.

The reports are furnished in turn by all who attend the meetings. The journals read and regularly reported on are: Annalen der Chemie; Berichte der deutschen chemischen Gesellschaft; Journal of the Chemical Society (London); Journal für praktische Chemie; Zeitschrift für analytische Chemie; Zeitschrift für physikalische Chemie; American Chemical Journal; Journal of the Society for Chemical Industry; Bulletin de la Société chimique; Annales de Chimie et de Physique; and occasionally others.

### Introductory and Collegiate Courses.

#### *First Year (Minor) Course.*

(*a*) Introduction to General Chemistry.
*Lectures and examinations five times weekly through the year* by Professor Remsen and Dr. Renouf.

(*b*) Laboratory Work.
*Five to six hours weekly through the year* under the direction of Professor Remsen, Dr. Renouf, and Dr. Randall.

### *Second Year (Major) Course.*

(*a*) Advanced Inorganic Chemistry.
*Twice weekly through the year* by Dr. MORSE.

(*b*) Chemistry of the Compounds of Carbon.
*Twice weekly through the year* by Professor REMSEN.

(*c*) Reviews in the Chemistry of the Compounds of Carbon.
*Once weekly through the year* by Dr. MORSE.

(*d*) Laboratory Work.
*Five to six hours weekly through the year* under the direction of Professor REMSEN and Dr. RENOUF.

## GEOLOGY AND MINERALOGY.

The work offered in Geology and Mineralogy is planned to meet the wants of those graduate students (1) who desire to make these their principal subjects for the degree of Doctor of Philosophy; or (2) who wish to make either or both of these subordinate subjects.

The Laboratory for Mineralogy and Petrography will be open daily from 9 a. m. to 5 p. m. under the supervision of Dr. GEORGE H. WILLIAMS. The work will include crystallography (measuring, calculation, and crystal drawing), physical and general determinative mineralogy, and the microscopical study of the crystalline rocks.

The Laboratory for Structural Geology and Palaeontology will be open daily from 9 a. m. to 5 p. m. under the supervision of Dr. WILLIAM B. CLARK. The work will include a study of selected materials designed to illustrate the general principles of structural and stratigraphical geology; and the more characteristic fossils chosen with reference to their stratigraphical importance and classification.

In addition to the regular laboratory work required in Geology, students will have ample opportunity to do field work, for which the State of Maryland presents unusual advantages.

The rocks of the region west of Baltimore offer many interesting problems relative to both eruptive rocks and the crystalline schists; while the mountains still farther west contain nearly the whole sequence of palaeozoic strata, and the Chesapeake section exposes the richly fossiliferous cretaceous and tertiary beds. Frequent excursions for the examination of these formations will be regarded as an integral part of the required work. Points of interest in the immediate vicinity of Baltimore will be visited on short Saturday excursions, while two trips of several days' duration will be arranged for examining the formations of the Appalachians and the Chesapeake.

Courses of lectures will be given as follows:

(*a*) On General Mineralogy, by Dr. Williams. *Four times weekly, throughout the year, at 11 a. m. in the Petrographical Laboratory.*

This course will embrace crystallography, crystal drawing and projection, physical (especially optical) and general descriptive mineralogy.

It is intended to meet the wants of chemists and also to serve as an introduction to more special work in mineralogy and petrography. There is assumed on the part of the student an elementary knowledge of geometry, optics, chemistry, and blow-pipe analysis.

This course is supplemented by examinations and practical work in crystal drawing and determinative mineralogy during three hours of each week.

(*b*) On Microscopical Petrography, by Dr. Williams. *Three times weekly, for the first half-year, at 9 a. m. in the Petrographical Laboratory.*

(*c*) On General Geology, by Dr. Clark. *Four times weekly, throughout the year, at 9 a. m. in the Palaeontological Laboratory.*

This course will embrace dynamical, stratigraphical, and historical geology, together with an outline of palaeontology.

It is intended to meet the wants of students of other departments who desire to take geology as a subordinate subject and also to serve as an introduction to more special work in petrography and palaeontology.

The course will be supplemented by examinations and laboratory work in the determination of rocks and fossils. Frequent excursions will be made upon which reports, illustrated by maps and sections, will be required.

(*d*) On Palaeontology, by Dr. Clark. *Weekly, throughout the year, at 2 p. m. in the Palaeontological Laboratory.*

(*e*) On Physical Geography, by Dr. Clark. *Three times weekly until Christmas, at 12 m. in the Palaeontological Laboratory.*

This course is required of undergraduates of the first year. It will be illustrated by suitable maps, charts and models.

## BIOLOGY.

### ADVANCED INSTRUCTION.

The advanced courses are designed for graduates who have already such knowledge of Biology as may be obtained by following the collegiate courses in that subject, and for others who, although not graduates, satisfy the university authorities that they are competent to undertake higher work. In the university courses but a small proportion of the teaching is given by formal lectures; the instructors come into close daily contact with the students, supervise their work, direct their researches, and advise as to their reading.

Students not far enough advanced to undertake research are usually given some important original article, and shown how to repeat and verify for themselves (and criticise) the experiments or observations described in it. By studying and repeating the original work of others they learn the methods of biological investigation, and are thus trained to plan and carry out researches themselves. In connection with this work, students also learn how to find and utilize the bibliography of a subject. Those whose aims lie in a physiological direction are required to begin by a careful study of the construction, and mode of using, of the chief physiological instruments.

1. Animal Physiology. Professor MARTIN and Dr. DREYER.

Professor MARTIN will lecture once a week to advanced students on selected topics, and with the aid of Dr. DREYER will direct the research and other work of such students.

The physiological seminary will meet weekly. Each member of the seminary is required in turn to give an abstract of some new and important physiological research or the story of the discovery of some fundamental physiological fact. The paper is finally discussed by all the members of the seminary.

The biological laboratory has been especially constructed with reference to providing opportunity for advanced work in experimental physiology. The collection of physiological instruments belonging to the university is unusually large and complete and is yearly added to. The laboratory contains two large rooms for general advanced work in animal physiology, in addition to others specially designed for work with the spectroscope, with the myograph, for electro-physiological researches, and for chemical physiology.

2. Animal Histology. Professor MARTIN and Dr. DREYER.

A course of instruction for advanced students in recent methods of hardening, staining, and section cutting.

The laboratory contains a special room constructed for advanced histological work, well supplied with apparatus and reagents. There is also a room and apparatus for micro-photography.

3. Animal Morphology. Professor BROOKS.

Professor BROOKS will lecture once a week on selected topics in Animal Morphology, and also conduct once or twice a week the meetings of the morphological seminary.

Rooms for advanced work in this subject are provided in the laboratory and fitted up with conveniences for both gross and microscopic dissections, and for embryological studies.

4. A Journal Club

Composed of the instructors and advanced students will meet weekly for the reading and discussion of recent biological publications.

5. Library Facilities.

The laboratory contains a library supplied with standard biological works and complete sets of the more important journals. There is also a special collection of books which have been brought together in connection with researches carried on in the laboratory.

The general library of the university receives all the chief journals of general science, and the transactions of the leading learned societies of the world.

The library of the Peabody Institute, within five minutes' walk of the university, contains complete sets of many of the chief biological journals, of the proceedings of learned societies, and other works of reference.

In the libraries of the Medical and Chirurgical Faculty of Maryland and the Johns Hopkins Hospital a large number of medical periodicals are accessible to members of the university.

The proximity of Washington is of special value to advanced students of physiology. The library of the Army Medical Museum in that city contains an almost unrivalled store of physiological and anatomical works, which are available under conditions favorable to study.

6. Publications.

In connection with the biological laboratory there is published a journal (*Studies from the Biological Laboratory*) which contains the results of most of the researches carried out in the laboratory; a ready means of publication for original work is thus secured.

7. Opportunities for study and research in Pathology and Bacteriology are afforded to properly qualified physiological students in the Pathological Institute, directed by Professor WELCH.

### Marine Laboratory.

Under the guidance of Professor W. K. BROOKS, graduate students will have opportunity for seaside study during the summer months. No lectures will be given, as the laboratory is essentially a research laboratory, but apparatus and material will be provided. The exact location of the laboratory next session is not yet decided, but it will probably be on Southern waters.

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## COLLEGIATE INSTRUCTION.

This is designed especially for undergraduate students; but graduate students who have not had a thorough preliminary training will be required to follow the instruction in those subjects of the undergraduate course in which they may be deficient.

Special students, who are not graduates or matriculates, may be received on giving satisfactory evidence that they are likely to be benefited by the course.

The regular undergraduate instruction in normal biology extends over two years, following one year's training in Physics and Chemistry; those who take Biology as a subsidiary subject for the B. A. degree are not required to do more than the first year's work in that subject.

### *First Year (Minor) Course.*

This has been planned to meet the needs (1) of those who intend later to take up some one branch of Biology (the natural history of living things) for special study; (2) of students, graduate or undergraduate, who expect to study medicine but meanwhile desire, as a valuable preparation, some general knowledge of the phenomena, laws and conditions of life; (3) of those who desire as a part of their general college training some acquaintance with the methods of modern experimental and observational science, and select Biology as a study with that end in view.

The course consists of five lectures or recitations weekly throughout the academic year with laboratory work. The following subjects are included in the year's work.

1. General Biology.

*Three lectures or recitations weekly from the commencement of the session until the end of March.* Professor MARTIN and Dr. ANDREWS.

Attention is directed to the broad characteristic phenomena of life and living things rather than to the minutiæ of descriptive botany or zoölogy, or to the characters of orders, genera, and species. In the laboratory the student learns how to observe, how to verify and describe what he observes, how to dissect, and how to use a microscope; he examines selected vegetable and animal types from unicellular organisms, such as the yeast-plant and Amœba, to the fern and the flowering plant on one side and to the crayfish and a bird on the other. In the lecture room attention is mainly given to the fundamental biological facts and laws which the particular plant or animal under consideration is fitted to illustrate, the object being rather to give the student an idea of what is meant by the terms living thing, plant, animal, tissue differentiation, life history, organ, function, natural classification, evolution, development, etc., than to teach him the elements of Botany and Comparative Anatomy as frequently understood.

2. The Elements of Embryology.

*Three lectures or recitations weekly from the beginning of April until the close of the session, with practical study of the development of the frog and the chicken.* Dr. ANDREWS.

3. Osteology, Human and Comparative.

*Two lectures or recitations weekly until the end of March, with practical study of selected skeletons.* Dr. BROOKS.

4. Plant Analysis and the Elements of Systematic Botany.

*Lectures and practical instructions twice weekly from the beginning of April until the close of the session.* Dr. BARTON.

### *Second Year (Major) Course.*

This is designed for those who, having completed the above minor course, desire to continue biological studies. Ultimately the second year's work in biology will be, at the choice of the student, one of three courses: in the first of these Animal Physiology will be the dominant study; in the second, Animal Morphology; in the third Botany. For the present a choice can be offered only between the first and second of the three.

1. Mammalian Anatomy.

*Five lectures weekly for one month, with five hours laboratory work each week.* Dr. ANDREWS.

In connection with this course the student dissects one of the higher mammals.

2. Vertebrate Histology.

*Lectures or recitations three times weekly, from early in November until Christmas, with five hours laboratory work each week.* Professor MARTIN.

In connection with this course the student studies practically the normal microscopic structure of the tissues and organs. He learns how to use staining and imbedding reagents, and is instructed in the technique of section cutting and mounting.

3. Animal Physiology.

*Three lectures or recitations weekly, from the beginning of January until the end of the session, with five hours laboratory work each week.* Professor MARTIN.

In connection with this course is practical study of the chemical composition of the more important constituents of the body, the chemistry of digestion and of the digestive liquids, the fundamental properties of living muscles and nerves, the beat of the heart, the phenomena of reflex action, chemistry of the urine, etc. Important physiological facts, which require special skill for their exhibition or the employment of especially delicate instruments, are demonstrated to the class. There will be, as a rule, one such demonstration each week.

The physiological apparatus belonging to the University is unusually good and complete; students have, accordingly, the opportunity to acquire a knowledge of the mode of using all the chief instruments employed in physiological, pathological, and pharmacological research.

While fully recognizing the great importance of physiology as a chief foundation of scientific medicine, the aim held in view will be to teach, as thoroughly as possible in the time, physiology as an independent branch of science, and not as medical physiology or "physiology for medical students." The technical applications of the science the student who intends to become a physician is expected to learn afterwards when he enters a professional school of medicine. It is believed that the better his knowledge of physiology as pure science, the better will he be able to apply his knowledge afterwards in the solving of practical problems.

4. Elements of Zoölogy.

*Two lectures or recitations weekly, from early in November until the end of the academic year, with five hours laboratory work each week.* Dr. Brooks.

A systematic course of lectures on the structure, relationships, and classification of animals. In the laboratory the student will dissect a number of forms selected to supplement the types studied in the general biology course of the former year.

Students who take the major course in Biology must attend all the lectures, but may choose between the laboratory work in Physiology and Zoölogy.

5. Pathology.

The laboratory work in Normal Biology occupies but two or three afternoons in each week. Opportunity is thus given to students to take a course of practical instruction in Bacteriology and Pathological Histology at the Pathological Institute. The decision whether a student has sufficient preparation to profit by such a course rests with Professor Martin and Professor Welch. A fee of twenty-five dollars for this course is charged by the Johns Hopkins Hospital. (See statement of courses in Pathology on a subsequent page of this *Circular*.)

### Naturalists' Field Club.

The field club was organized by members of the University, but includes in its list of members other residents of Baltimore interested in natural history. The club works in four sections—Geology and Mineralogy, Zoölogy, Botany, and the "Clifton Section." The last is organized by undergraduates for the study of the natural history of the Clifton estate. Each section elects its own officers and arranges for its own field excursions and its own meetings. There are also monthly meetings of the whole club, when the chairmen of the several sections report progress, and an address on some topic of natural history is given by one of the members.

## GREEK.

### Greek Seminary.

Professor Gildersleeve will conduct the Greek Seminary, the plan of which is based on the continuous study of some leading author or some special department of literature.

The Seminary consists of the director, fellows, and scholars, and such advanced students as shall satisfy the director of their fitness for an active participation in the work by an essay, a critical exercise, or some similar test of attainments and capacity. All graduate students, however, may have the privilege of attending the course.

During the next academic year the study of the *Greek Historians* will constitute the chief occupation of the members and *Thukydides* will be the centre of the work. There will be two meetings a week during the entire session. Especial attention will be paid to the development of historical style and method.

In connection with the seminary there will be held a series of conferences on *Greek Historiography.*

The students should possess Herodotos, Thukydides, Xenophon, Polybios, Dionysios of Halikarnassos (rhetorical works), and Schäfer's Quellenkunde der Griechischen Geschichte.

### Advanced and Graduate Courses.

1. Professor Gildersleeve will also conduct a course of *Practical Exercises in Greek*, consisting chiefly in translation at dictation from Greek into English and English into Greek, two meetings a week from the beginning of the session to the first of January.

2. He will also lecture on *Greek Syntax* once a week throughout the session, in continuation of the course on *Greek Syntax in its relation to style.*

3. The subject of *Hermeneutics and Criticism* will be taken up in a series of conferences (Blass being the text book).

4. Notice of other courses is reserved.

Dr. Gudeman will conduct the following courses:

5. On the numismatic, epigraphic, and literary *Sources of Greek History*, during the first half-year.

6. On *Aristotle's Poetics*, with introductory lectures on his life and writings, during the first half-year.

7. On Ps. *Longinus on the Sublime*, during the second half-year.

Dr. W. M. Arnolt will give the following courses:

8. On the *New Testament* (critical introduction.)

9. On the *Acts of the Apostles.*

10. On the *Apologies of Justin Martyr.*

### Undergraduate Courses.

Dr. Spieker will conduct the undergraduate courses in Greek as follows:

1. Andokides, *de Mysteriis.*

*Four times weekly, first half year.*

Private Reading: *Lysias, Select orations.*

2. Homer, *Odyssey, three books;* Euripides, *one play.*

*Four times weekly, second half year.*

Private Reading: Herodotos, *one book.*

3. Plato, *Protagoras.*

*Three times weekly, first half year.*

Private Reading: Demosthenes, *de Corona.*

4. Aischylos, *one play;* Sophokles, *one play.*

*Three times weekly, second half year.*

Private Reading: Aristophanes, *one play.*

5. Prose Composition.

*Weekly exercises in connection with each of the above courses.*

6. Conferences on Greek Literature, with select readings from the elegiac, iambic, and lyric poets.

*Weekly, through the year.*

7. Sight Reading.

*A voluntary course, weekly, through the year.*

## LATIN.

### I. Latin Seminary.

Dr. Minton Warren will conduct the Latin Seminary. Vergil has been chosen as the centre of work for the next academic year. There will be two meetings a week during the entire session, devoted to critical interpretation, to auxiliary studies, and to the presentation of papers by the members of the Seminary.

Students are advised to provide themselves in advance with a text edition of Vergil, including the Carmina Minora (Thilo, Tauchnitz, Leipsic, 1886) and Eyssenhardt's edition of Macrobius, (Teubner, Leipsic, 1868), and Baehrens' Fragmenta Poetarum Romanorum (Teubner, Leipsic, 1886).

### II. Advanced and Graduate Courses.

1. During the first half-year Dr. Warren will give a course of weekly lectures on topics connected with *Vergil and Roman Epic Poetry.*

2. The course of lectures begun during the previous year on *Historical Latin Grammar* will be continued once a week.

3. During the second half-year Dr. Warren will read *Macrobius* with a class once a week.

4. A *Journal Club* will meet regularly to report on the current philological periodicals containing articles of interest to Latinists.

5. Dr. Kirby W. Smith will give a course of lectures on the *Roman Epic Poets after Vergil.*

6. Dr. Alfred Gudeman will give a course of lectures on Cicero, *de Legibus.*

### III. Undergraduate Courses.

1. Livy, *two books.*
   *Four times weekly, first half-year.* Dr. K. W. Smith.
   Private Reading: Cicero, *de Senectute, de Amicitia,* Quintus Curtius, *book iv.*
2. Horace, *Select Odes, Satires and Epistles.*
   *Four times weekly, second half-year.* Dr. K. W. Smith.
   Private Reading: Horace, *Epodes;* Ovid, *Fasti, books i and ii.*
3. Plautus, *Pseudolus;* Terence, *Andria.*
   *Three times weekly, first half-year.* Dr. Warren.
   Reading at Sight.
   *One hour weekly.*
   Private Reading: Plautus, *Amphitruo;* Terence, *Hautontimorumenos.*
4. Selections from Catullus and Propertius.
   *Three times weekly, second half-year.* Dr. K. W. Smith.
   Reading at Sight.
   *One hour weekly.*
   Private Reading: Pliny, *Select Letters.*
5. Prose Composition.
   *Weekly exercises in connection with each of the above courses.*
6. Tacitus, *Agricola, Germania, and one book of the Annals.*
   *Four times weekly, second half-year.* Dr. Warren.
7. Courses in Sight Reading for third-year students.
   Dr. Gudeman.

## SANSKRIT AND COMPARATIVE PHILOLOGY.

The following courses will be given by Professor Bloomfield:

*A. Linguistic Science and Comparative Grammar.*

1. The Elements of Linguistic Science, together with an exposition and criticism of modern methods in scientific grammar.
*Weekly, through the year.*

2. Elementary Comparative Grammar of the Verbal Inflections in Greek and Latin.
*Weekly, through the year.*

Note.—No knowledge of Sanskrit is required for either of the two courses indicated above. Course No. 1 sketches briefly the history of the Science of Language; presents a short analysis of the principal Indo-European languages and deals with the fundamental questions of change in language and the origin of language. It is designed to outline the general principles involved in the historical study of every language. Course No. 2 is intended as an introduction into the most elementary methods and results of comparative grammar.

*B. Indo-Iranian Languages.*

3. Vedic Seminary: The Literature of the Brāhmaṇas with special reference to the Vedic lyrics.

Note.—The Brāhmaṇas are the oldest Indian prose, and in their study the effort is made to break down the artificial barrier which it has been customary to erect about the interpretation of the lyrical parts of the Veda. Vedic hymns and the corresponding passages in the Brāhmaṇas are expounded: each is made to contribute to the interpretation of the other.
*Weekly, through the year.*

4. Introduction to Zend and the Zend-Avesta.
*Weekly, through the year.*

5. Readings in the Hitopadeça and Manu. Second year's course.
*Twice weekly, first half-year.*

6. Introduction to the Elements of Vedic Study. Second year's course.
*Twice weekly, second half-year.*

The following courses will be given by Mr. Baden:

7. History of Vedic Literature.
*Weekly, through the year.*

8. Elementary Course in Sanskrit: grammar; prose writing; interpretation of easy texts.
*Twice weekly, through the year.*

## SEMITIC PHILOLOGY.

The various courses in Semitic Philology are adapted to the requirements of four classes of students:

(*a*) Students of theology wishing to obtain a thorough acquaintance with the sacred tongue and its sister idioms as a means of elucidating Scripture and problems of the comparative history of religion.

(*b*) Students of linguistics intending to make comparative grammar of the Semitic languages their specialty.

(*c*) Students of Oriental history and archæology desirous of drawing directly from the original sources.

(*d*) Persons looking for instruction in the living Oriental languages (as Modern Arabic or Turkish) for practical purposes.

Most of the teaching is not given by formal lectures, but under seminary organization, the student being from the first brought face to face with the several idioms, without long theoretical introduction. Special stress is laid on a thorough grammatical training, imparted in connection with the minute philological analysis of some selected text in the respective languages, printed grammars serving only for occasional reference.

The centre of the work is the Old Testament, particular attention being paid to the critical study of Biblical Texts and the Cuneiform Inscriptions bearing on the Scriptures.

A special room has been set apart containing a well equipped working library of all the branches of Oriental research.

The following courses will be given by Professor HAUPT, assisted by Dr. ADLER, Dr. JOHNSTON, Dr. LEON, and Mr. PRINCE.

### *Biblical History and Geography.*

1. History of the Ancient East (Egypt, Babylonia, Assyria, Israel, Persia). Dr. JOHNSTON. *Weekly.*
2. Biblical Geography (Palestine and the adjacent countries). Dr. JOHNSTON. *Weekly.*
3. Geography of Mesopotamia according to the works of the Arabic geographers compared with the references in the Cuneiform Inscriptions. Dr. LEON. *Weekly.*

### *Hebrew Language and Literature.*

4. Introduction to the Old Testament. Dr. JOHNSTON. *Weekly.*
5. Elementary Hebrew (Gesenius-Mitchell's Grammar and reading of the Pentateuch). Mr. PRINCE. *Weekly.*

*None of these five courses pre-suppose a knowledge of Semitic.*

6. Hebrew Exercises: Reading at sight selected chapters of the historical books. Dr. ADLER. *Twice weekly.*
7. Hebrew (and Arabic) Prose Composition: Practical exercises in translating from English into Hebrew (and Arabic). Professor HAUPT. *Monday, 5 p. m.*
8. Critical interpretation of the book of Genesis with a sketch of the modern views as to the higher criticism of the Hexateuch. Dr. JOHNSTON. *Weekly.*
9. Critical interpretation of selected Psalms. Professor HAUPT. *Monday, 3 p. m.*
10. Post-Biblical Hebrew: The Mishnic tract *Pirge Aboth* (ed. Strack, Berlin, 1888). Dr. ADLER. *Weekly.*

### *Biblical Aramean.*

11. Biblical Aramean: Interpretation of the Chaldee portions of the book of Ezra. Professor HAUPT. *Monday, 4 p. m.*

### *Assyriology.*

12. Assyrian for beginners (Delitzsch's Grammar and Haupt's Texts). Mr. PRINCE. *Weekly.*
13. Assyrian: Second year's course (Delitzsch's *Lesestücke*). Dr. ADLER. *Twice weekly.*
14. Interpretation of the Babylonian Nimrod Epic. Professor HAUPT. *Wednesday, 3 p. m.*
15. Sumero-Akkadian: Reading of the bilingual hymns and penitential psalms in Vol. IV of Rawlinson's Cuneiform Inscriptions (new edition, London, 1891). Professor HAUPT. *Wednesday, 4–6 p. m.*
16. Assyrian Seminary: Cursory Reading of Rawlinson's Inscriptions, Vols. II and V, for lexicographical purposes.

### *Arabic.*

17. Arabic for beginners. Dr. JOHNSTON. *Weekly.*
18. Arabic Grammar and Interpretation of selected Arabic texts. Dr. JOHNSTON. *Weekly.*
19. Arabic Exercises: Reading at sight selected Arabic texts. Dr. LEON. *Weekly.*
20. Arabic Prose Composition. Professor HAUPT. *See No. 7.*
21. Arabic Conversation. Dr. LEON. *Weekly.*

### *Turkish.*

22. Turkish (Osmanli): Second year's course. Mr. PRINCE. *Weekly.*

### *Ethiopic.*

23. Ethiopic for beginners (Praetorius' Grammar and Dillmann's Chrestomathy). Dr. ADLER. *Twice weekly.*

### *Public Lectures.*

In addition to the courses indicated above a *series of public lectures* will be given during the second-half year. A special programme of this course will be published at the beginning of the session.

(*a*). Professor HAUPT will give an introductory statement *On the Importance of Semitic Research* (1).

(*b*). Mr. PRINCE will give six illustrated lectures on *The Cuneiform Inscriptions and the Old Testament* (6).

(*c*). Dr. JOHNSTON will lecture on *Egyptian Antiquities* (4).

(*d*). Dr. LEON will lecture on the *Jewish Philosophers of the Middle Ages* (4) and on *The Manners and Customs of the Modern East*, with special reference to the Bible (4).

(*e*). Dr. ADLER will lecture on *The Modern East* in its ethnological, political and commercial aspects.

## ENGLISH.

Dr. JAMES W. BRIGHT offers the following courses:

1. The English Seminary. During the first half-year the Elizabethan Drama will be studied. In the second half-year the subject will be the Prose Writings of the Anglo-Saxon Period. The meetings of the Seminary will occupy four hours weekly.
2. Anglo-Saxon Versification and Textual Criticism, based on the "Phœnix" and the "Gūthlāc."
   *Twice weekly, first half-year.*
3. The Middle English versions of the "St. Alexis," and of the "Ipomedon."
   *Twice weekly, second half-year.*
4. The History of English Inflections, on the basis of Indogermanic Grammar: Lectures.
   *Weekly, through the year.*
5. An Introduction to Anglo-Saxon Paleography: Lectures.
   *Weekly, second half-year.*
6. Journal Meetings.
   *Weekly, through the year.*
7. Anglo-Saxon: Bright's Anglo-Saxon Reader, and Sievers' Anglo-Saxon Grammar (translated by Cook).
   *Twice weekly, through the year.*

Dr. Wm. Hand Browne will conduct the following courses:

8. Early Scottish Poets. Early Scottish Poetry from Barbour (A. D. 1350) to Lyndsay (A. D. 1550) will be studied with the aid of a chrestomathy especially prepared for this class. The readings will be supplemented by a concurrent course of historical and critical lectures.
*Weekly, through the year.*

9. Three courses of Lectures on Selected Periods of English Literature.
   (*a*) Elizabethan Literature;
   (*b*) Origin and Development of English Comedy;
   (*c*) [to be announced later.]
*Twice weekly, through the year.*

10. Middle English. Morris and Skeats' "Specimens of Early English," and other appropriately edited texts.
*Twice weekly, through the year.*

11. English Literature. The Morley-Tyler "First Sketch of English Literature" will be used as the text-book. Supplementary lectures will be given in alternate weeks.
*Alternately, twice and three times weekly, through the year.*

12. Essays. Short essays on subjects taken from their current studies will be required of the students, and commented on by the instructor with reference to both substance and form.
*Once in two weeks, through the year.*

Mr. C. A. Smith will give instruction to undergraduates in:

Rhetoric and English Composition.
*Twice weekly, through the year.*

[Note.—Numbers 7, 8, and 9 constitute the Major Course; 10, 11, and 12, the Minor Course.]

Professor R. C. Jebb, of Cambridge, England, will give the second course of the Percy Turnbull Memorial Lectures on Poetry.

Professor C. T. Winchester, of Wesleyan University, will give in February, 1892, a course of lectures, on the Donavan Foundation, on *English Poets from* 1789 *to* 1832 (Burns, Wordsworth, Southey, Coleridge, Scott, Byron, Shelley, and Keats.)

A series of lectures on various literary topics will be given chiefly by graduate students of the English department.

## GERMAN.

### Advanced Courses.

1. Teutonic Seminary. Dr. Wood.

*First Section:*

(*a*). Old High German.

Braune, *Althochdeutsche Grammatik*, Halle, 1886; Braune, *Althochdeutsches Lesebuch*, 3 Auflage, 1888; Müllenhoff und Scherer, *Denkmäler*, 2 Ausgabe, 1873. *Four hours weekly, first half-year.*

(b). Middle High German. The early minnesong to Walther von der Vogelweide.

*Des Minnesangs Frühling*, hrsg. Lachmann und Haupt, 3 Ausgabe, Leipzig, 1882. *Four hours weekly, second half-year.*

*Second Section:* Bi-weekly meetings will be held.

The work will consist of original studies by the members, and of reports on subjects connected with the work of the First Section of the Seminary.

2. Introduction to German Philology. Dr. Wood.

Braune, *Gotische Grammatik*, 3 Aufl., 1887; Braune, *Abriss der althochdeutschen Grammatik*, 1891; Schade, *Paradigmen zur deutschen Grammatik*, 4 Auflage, 1884; Müllenhoff, *Altdeutsche Sprachproben*, 4 Aufl., 1885. *Twice weekly, through the year.*

There will be a weekly review of the work in Gothic and Comparative German Grammar, in a class conducted by the Fellow in German.

3. Goethe and Schiller. Dr. Wood.

The period in German Literature from Goethe's Italian Journey (1786) to the death of Schiller (1805) will be studied in a series of lectures and readings. The subjects to receive special attention will be: Goethe's period of pronounced classical sympathies, Schiller's influence upon Goethe and their contemporaries in the direction of 'subjectivism' in poetry, and Goethe's subsequent return to his German point of view in later works. *Twice weekly, through the year.*

4. Middle High German. Introductory Course. Dr. Learned.

Paul's *Grammatik*, 3 Aufl., 1889; Hartmann's *Erec*, hrsg. Haupt, 2 Aufl., 1871. *Weekly.*

5. The Heldenbuch. Dr. Learned.

The second part of the Heldenbuch (*Alphart's Tod, Dietrich's Flucht und Rabenschlacht*, hrsg. Martin, Berlin, 1866) will be read in class, during the first half-year. This will be followed by lectures on the relation of the minor Middle High German epics to the Nibelungen. *Twice weekly, through the year.*

### Undergraduate Courses.

*Major Course.*

1. Classics.
Goethe, *Hermann und Dorothea, Faust.* *Twice weekly.* Dr. Wood and Dr. Learned.

2. Prose Readings.
Freytag, *Aus dem Mittelalter.* *Weekly.* Dr. Learned.

3. History of German Literature.
Kluge, *Geschichte der deutschen Nationallitteratur.* *Weekly.* Dr. Schoenfeld.

4. Prose Composition.
Buchheim, with Wilmann's *Deutsche Schulgrammatik, 2 Theil.* *Weekly.* Dr. Learned.

5. Private Readings.
Voss, *Luise;* Schiller, *Wallenstein.*

*Minor Course A.*

1. Classics.
Schiller, *Wilhelm Tell;* Goethe, *Egmont;* Heine, *Harzreise.*
*Twice weekly.* Dr. Learned.

2. Prose Readings.
*Briefwechsel zwischen Schiller und Goethe.* *Weekly.* Dr. Wood.
Freytag, *Aus dem Staat Friedrichs des Grossen.* *Weekly.* Dr. Learned.

3. Prose Composition.
Whitney's *Grammar, Exercises, 2d Series.* Dr. Wood and Dr. Learned.

4. Private Readings.
Schiller, *Des Grafen Lamoral Egmont Leben und Tod* (in Schiller's *Historische Skizzen*, ed. Buchheim, Clarendon Press); *Die Jungfrau von Orleans.*

*Minor Course B.*

Class-work.

Otis' *Elementary German;* Buchheim's *Modern German Reader, Part 1;* Schiller, *Wilhelm Tell;* Goethe, *Egmont;* Prose Composition: Whitney's *Grammar, Exercises, 1st Series.* *Daily.* Dr. Schoenfeld.

*Supplementary Courses.*

1. Historical and Scientific German.

Helmholtz, *Über Goethe's Naturwissenschaftliche Arbeiten;* Freytag, *Aus neuer Zeit. Bilder*, Bd. IV.; Alex. von Humboldt, *Auswahl aus seinen Werken.* Stuttgart (Cotta). *Twice weekly.* Dr. Schoenfeld.

This class is intended for graduate students in any department of study, who possess an elementary knowledge of German and wish to acquire fluency in reading.

2. German Conversation.

*Twice weekly.* Dr. Schoenfeld.

Undergraduate students in German and graduate students in any department, who show their fitness for it, may be admitted to this course.

3. Lectures on Germany.

A weekly course of informal lectures will be given on Germany, the country and people, geography, history, both past and contemporary, and kindred topics,—attendance on the course being optional. *Weekly.* Dr. Schoenfeld.

## ROMANCE LANGUAGES.

### Advanced Courses in Romance Philology.

Dr. Elliott.

1. With second and third year students.
   - (*a*). Seminary. *Two hours weekly.*
     The Breton Cycle: *Cligés.*
   - (*b*). Linguistic Ethnography of France and Italy. *Weekly.*
   - (*c*). French Dialects. *Weekly.*
   - (*d*). Italian Dialects. *Weekly.*
   - (*e*). Popular Latin. *Weekly.*
   - (*f*). General Phonetics. *Weekly.*

Dr. Matzke.

- (*g*). Italian Philology. *Weekly.*
  Monaci's *Crestomazia italiana dei primi Secoli;* Boccaccio's *Decameron.*
- (*h*). Italian Literature. *Weekly.*
  The *Romanzo Cavalleresco.*
- (*i*). Provençal. *Two hours weekly.*
  Restori, *Letteratura provenzale; Jaufre; Guillem de la Barra.*

2. With first year students.
   - (*a*). Old French Philology. *Two hours weekly.*
     *Aucassin et Nicolete.*
   - (*b*). Schwan, *Grammatik des Altfranzösischen;* Suchier, *Die französische Sprache* (as given in Gröber's *Grundriss.*) *Weekly.*

Mr. Edwin S. Lewis.

- (*c*). French Phonetics. *Weekly.*
  Passy, *Les Sons du Français;* Beyer, *Französische Phonetik.*
- (*d*) Interpretation of Old French Texts. *Two hours weekly.*
  Constans, *Chrestomathie de l'ancien Français.* 2d edition.

### Special Courses in Italian and Spanish.

Dr. Matzke.

1. Italian. *Three hours weekly.*

*Italian Principia,* Parts I and II (Grammar and Readings); Sonzogno, *Letteratura italiana;* Alfieri, *Oreste;* Tasso, *Gerusalemme Liberata.*

Mr. Marden.

2. Spanish. *Two hours weekly.*

Knapp's Grammar and Readings.

The combined courses in Italian and Spanish may be pursued as a *major course* by undergraduate students who have taken the minor course in French.

### Undergraduate Courses in French.

#### I. *First Year (Minor) Course.*

*Class A.* Mr. Symington.

1. Literary. *Three hours weekly.*

Balzac, *Eugénie Grandet;* Sand, *La Mare au Diable;* Augier, *Le Gendre de M. Poirier;* Hugo, *Hernani;* Daudet, *Contes;* Erckmann-Chatrian, *L'Ami Fritz.*

Private Reading.

2. Historical. *Weekly.*

Michelet, *Récits d'Histoire de France.*

3. Prose Composition and Exercises in Idioms. *Weekly.*

Whitney's Grammar, Part II.

*Class B.* Mr. Marden.

For undergraduates who have matriculated in Greek, and for graduates beginning French. *Five hours weekly.*

#### II. *Second Year (Major) Course.*

Dr. Matzke and Mr. Symington.

1. Classical Tragedy. *Weekly.*
   Rapid reading of Corneille, Racine, Voltaire, Ponsard.
2. The Study of Victor Hugo. *Two hours weekly.*
3. French Literature from the Renaissance to the Revolution. *Weekly.*
4. Prose Composition.
   Critical Study of Idioms. *Weekly, first half-year.*
   Original Essays. *Weekly, second half-year.*

## LOGIC, ETHICS, AND PSYCHOLOGY.

These courses provide five hours per week of required work for one year.

(*a*) Deductive and Inductive Logic, by Associate Professor Emmott.

In this class special attention will be given to the general theories of both Deduction and Induction; to the various forms of thought: notion, judgment, and reasoning: and also to the various methods of scientific investigation and proof, as well as to the application of the rules of the syllogism and the detection of fallacies.

The topics treated of will include the following:

(1). Province and definition of logic.
(2). The forms of thought; notion, judgment, reasoning.
   (*a*) Terms and their various kinds.
   (*b*) The various kinds of propositions or judgments; opposition and conversion.
   (*c*) Mediate inference or syllogism.
   (*d*) Aristotle's classification of logical and material fallacies.
(3). Methods of scientific investigation and proof.
(4). Fallacies incident to induction.

The work in this class will consist of short informal lectures, recitations, themes, epitomes, etc.

Text Books: Jevons' Elementary Lessons in Logic, Fowler's Elements of Inductive Logic, with selected passages from the larger works of Jevons, and from the works of Mill, Bain, Venn, Keynes, and other recent writers.

(*b*) Psychology, by Professor Griffin.

The instruction in psychology is intended to give a general view of the results of the new methods of study, the recent investigations in regard to the quality and intensity of sensations, the duration of psychic acts, etc.—in general, the subjects treated in Part II of Ladd's Physiological Psychology—being presented with sufficient detail to render them intelligible and interesting.

Especial emphasis is laid upon the facts of conscious experience as known through introspection, the most important end to be secured being, it is believed, such an understanding of the facts and laws of mental life as shall fit one for wise self-government and effective influence. With this view, such powers and states of mind as attention, memory, association, habit, imagination, the feelings, the will, are discussed in as concrete and practical a way as possible. A text book is used as the basis of instruction, but this is largely supplemented by informal lectures, and by references to various authorities. Two essays on assigned subjects are required from each member of the class.

Text Books: Baldwin's Handbook of Psychology, Sully's Outlines of Psychology, James's Psychology, Dewey's Psychology, Hamilton's Lectures on Metaphysics, Porter's Human Intellect, Spencer's Principles of Psychology, Ladd's Physiological Psychology.

A series of lectures and demonstrations on the anatomy and physiology of the muscular and nervous systems is given, as a voluntary course, in the Biological Laboratory.

### (c) Ethics, by Professor Griffin.

The fundamental problems of ethics and the application of moral principles to the guidance of conduct and the formation of a manly character, are considered with special reference to the Christian theory of morals. The great historic systems—hedonism, ultilitarianism, intuitionism—and the relation to ethical theory of the doctrine of evolution, are discussed with the purpose of enabling the student to reach a just and intelligent view of the grounds and nature of moral obligation. But, while keeping to a scientific basis, the aim throughout is to make the instruction of a directly practical nature, and to show the bearing of the problems considered upon questions of practical ethics.

The subject is taught by lectures, recitations from a text book—Fowler's Principles of Morals, Part II, being used at present—and references to the works of the most important writers. One essay is required from each member of the class.

Text Books: Calderwood's Handbook of Moral Philosophy, Janet's Elements of Morals and Theory of Morals, Martineau's Types of Ethical Theory, Sidgwick's Methods of Ethics, Stephen's Science of Ethics, Martensen's Christian Ethics, Sidgwick's History of Ethics.

An outline of the History of Philosophy is given by Professor Griffin as a voluntary course.

For next year the following advanced courses in Philosophy are offered:

1. Modern Philosophy from Descartes to Kant.
   *Weekly through the year.* Professor Griffin.
2. Modern Ethical Theories.
   *Fortnightly, two hours.* Professor Griffin.

## HISTORY AND POLITICS.

### A. Graduate and Advanced Courses.

Dr. Herbert B. Adams conducts the following courses of instruction:

The Seminary.

*Two hours weekly, through the year.*

The Seminary of History and Politics is a co-operative society composed of the instructors, fellows, scholars, and graduate students in this department, for the encouragement and promotion of original investigation in American institutional, educational, economic, and social history. Subjects are assigned by the Director to individuals for private research and public report in the seminary. These reports of progress are discussed, criticised, and referred to committees for further report. The results finally attained may be embodied either in theses for the degree of Doctor of Philosophy, or in other papers, published in the Historical Studies or elsewhere.

In addition to these formal papers, brief reports on new books, monographs, and magazine articles are required of seminary members. These exercises afford valuable training in the art of criticism. The notes are sometimes published in critical journals. Co-operative reports on the progress of American historical literature are prepared by members of the seminary for foreign periodicals.

History of the Nineteenth Century.

*One hour weekly, first half-year.*

History of Roman Politics.

*Two hours weekly, first half-year.*

French Absolutism and the Revolution.

*Two hours weekly, second half-year.*

Mr. Emmott will lecture on the History and Principles of the Roman Law and the History of Roman Institutions.

*Two hours weekly, through the year.*

The instruction in Historical and Comparative Jurisprudence is so planned as to cover three years, but the work in each year is, as far as possible, complete in itself. The course in 1891–92 will open with a description of the origin and nature of the primitive Roman State and of the early legal institutions of the Roman people, and will trace fully the history and gradual progress of the Roman Law through all its stages of development from the earliest times down to and including the codification of the law by Justinian, special attention being paid to the orginal sources of the Roman Law and to the gradual development and continuity of Roman legal and political institutions. In the second part of the course the subject matter of the Institutes of Gaius and of the Institutes of Justinian will be carefully analyzed, compared, and classified, and the fundamental principles of the Roman Law fully explained and illustrated. The topics treated of will be: the law of the family; the law of things; the law of wills; the law of contract; forms of contract; the law of procedure. The instruction throughout will be comparative and historical in its method. Books of reference: Muirhead's Private Law of Rome, Muirhead's or Poste's Institutes of Gaius, Moyle's Institutes of Justinian, Hunter's Roman Law, Ortolan's Explication Historique des Instituts.

Dr. R. T. Ely will give the following instruction:

General Economics.

*Two hours weekly, first half-year.*

This course will deal with some of the fundamental principles of political economy and attention will be given to recent discussions of controverted points. The topics examined will be the nature and scope of political economy and its relation to other sciences; economic methods; definitions; some leading concepts as rent, capital, value, price, consumption of wealth. Collateral reading will be required.

Special Economics.

*Two hours weekly, second half-year.*

This course will be devoted to an examination of unsettled practical problems in economics. The following topics among others will be discussed: the nature of government, corporations, some aspects of transportation, labor organizations. Collateral reading will be required.

Economic Conferences.

*One evening each week.*

The work for the coming year will be a continuation of that carried on during the past academic year. A critical examination and discussion of Adam Smith and his English and Scotch predecessors will occupy three evenings out of the year and every fourth evening will be a journal meeting, devoted to the discussion of recent economic literature.

Professor Woodrow Wilson, of Princeton College, will give twenty-five lectures upon Administration and Public Law.

Dr. Albert Shaw, American Editor of The Review of Reviews, will give a course of lectures on Municipal and Social Problems.

He will consider: (1) The social aspects of housing and transit in London; (2) Social aspects of housing and transit in Paris; (3) Outworking of the polytechnic problem in London; (4) General Booth's project and other schemes for social amelioration.

Professor Henry Carter Adams, Statistician of the Inter-State Commerce Commission and Professor of Political Economy in the University of Michigan, will give a short course of class lectures to graduate students upon topics connected with his present lines of investigation in Washington.

Dr. E. R. L. Gould, of the U. S. Department of Labor, who has spent three years in Europe investigating economic and social questions, will give a course of ten lectures on Recent Phases of Social Science in Europe.

James Schouler, LL. D., author of the History of the United States under the Constitution, will give ten lectures in February and March, 1892, on American Political History.

Hon. John A. Kasson, of Washington, D. C., (U. S. Minister to Austria, 1877–81, and Minister to Germany, 1884–85), will give ten lectures in April and May, 1892, on the History of European and American Diplomacy.

### B. Undergraduate Courses.

1. Greek and Roman History.
*Three hours weekly, from January until June, with* Mr. Kinley.
2. Outlines of European History (substitute for Course 1).
*Three hours weekly, from January until June, with* Mr. Scott.
3. History, Minor course: Herodotus and Thucydides, in translation.
*Weekly through the year, with* Mr. Kinley.
4. History, Minor course: Livy and Tacitus, in the original.
*Four times weekly, with classical instructors.*
5. History, Major course: Church History; Mediæval and Modern Europe.
*Daily through the year, with* Dr. Adams *and* Mr. Scott.
6. Political Science, Minor course: Introduction to Political Economy.
*Daily through the year, with* Dr. Ely.
7. Political Science, Major course: International Law and Diplomatic History; English and American Constitutional History.
*Daily, with* Dr. Adams *and* Mr. Emmott.

## PATHOLOGY AND BACTERIOLOGY.

The instruction in Pathology is given in the Pathological Laboratory, one of the buildings of the Johns Hopkins Hospital, by Prof. William H. Welch, Prof. William T. Councilman and Dr. George H. F. Nuttall. The courses are open to physicians and to advanced students of Biology. For those who lack the requisite training in Normal Histology, opportunity for study is offered in the Biological Laboratory.

1. Advanced and Special Work. Professor Welch, Professor Councilman and Dr. Nuttall.

Opportunity is given for advanced work and research in Pathological Histology, Experimental Pathology and Bacteriology.

The Laboratory is equipped with material for investigations in Pathological Histology, with the necessary apparatus for work in Experimental Pathology, and with cultures and facilities for bacteriological research. Rooms for photo-micrographic work have been fitted up. There is an ample supply of fresh material from the wards of the Hospital and from the post-mortem examinations. Attention is paid to the pathological study of diseases of animals, for which purpose abundant material has been collected. Special subjects for research will be assigned.

2. Post-Mortem Examinations. Professor Welch and Professor Councilman.

Frequent opportunity is afforded to witness post-mortem examinations, and instruction is given in the methods of conducting such examinations and of recording in proper protocols the results. The autopsy theatre is in the Pathological Laboratory.

3. Pathological Demonstrations. Professor Welch and Professor Councilman.

Fresh material from post-mortem examinations held in the Pathological Laboratory and elsewhere in the city is demonstrated in connection with the course in pathological histology. Extensive use is made of frozen microscopical sections of these fresh specimens and students are often given portions of morbid specimens to harden and to prepare for microscopical examination. A useful collection of museum specimens is also employed in demonstrating the gross lesions.

4. Pathological Histology. Professor Welch and Professor Councilman.

Two courses, one beginning early in October and the other the first of February, are given on three afternoons of the week.

After the study of inflammation and other subjects in general pathology, the pathological histology of the different tissues and organs of the body is taken up in regular order. Microscopical sections are given to be stained, mounted, and carefully studied and drawn. The student is encouraged also to cut sections and to become familiar with the technique of pathological histology, and in general to perform as much independent work as his time will permit. Written examinations, consisting in the diagnosis and description of microscopical sections, are held frequently during this course. Those who wish short courses of a few weeks' duration in pathological and clinical microscopy are not advised to come here.

5. Bacteriology. Professor Welch and Dr. Nuttall.

Courses in Bacteriology begin the middle of October and the first of February.

These courses consist in practical work in the bacteriological laboratory, which occupies rooms in the pathological building. The student is taught the preparation of culture media, the principles of disinfection and sterilization, methods of cultivating, staining and studying bacteria, and familiarity with the important species of bacteria, particularly those of a pathogenic nature. This department is fully supplied with the requisite apparatus and cultures for bacteriological work. The general plan of instruction is that adopted in the Hygienic Institute in Berlin.

6. Lectures. In addition to the informal lectures introducing the study of each new topic in the practical courses in the laboratory, systematic lectures are given by the staff of the Hospital and Pathological Laboratory during the months of January, February, and March in the clinical amphitheatre. These lectures, which are upon selected subjects in pathology, bacteriology, medicine and surgery, are announced in a special programme.

7. Societies. The Hospital Medical Society, Historical Club, and Journal Club meet, one upon each Monday evening.

8. Library. The library of the Hospital is supplied with an increasing collection of medical books and periodicals. The leading foreign and American medical journals are taken.

Students may also make use of the library of the University, which contains the standard biological works and sets of the important journals. The library of the Peabody Institute is also available, and is especially rich in proceedings of learned societies. The library of the Army Medical Museum in Washington, by special arrangement, permits books to be sent to the Hospital when desired. The proximity of Washington permits the ready consultation of books in the libraries there and the examination of the valuable specimens in the Army Medical Museum.

9. Publications. The Hospital Bulletin, issued monthly, and the Hospital Reports contain proceedings of societies, articles by the hospital staff, and the results of most of the researches. These afford a ready means of publication of original work.

10. Hospital and Dispensary. The pathological laboratory being upon the same grounds with the Hospital and Dispensary the opportunities are convenient for combining clinical work, attendance upon operations and clinical lectures, and studies in the clinical laboratory with the work in pathology.

# DEGREES CONFERRED, JUNE 11, 1891.

## Doctors of Philosophy.

Alfred Bagby, Jr., of Stevensville, Va., A. B., Richmond College, 1885. *Subjects:* Latin, Greek, and Sanskrit. *Thesis:* Adverbs in Horace and Juvenal.

James William Black, of Baltimore, A. B., Johns Hopkins University, 1888. *Subjects:* History, Political Economy, and Roman Law. *Thesis:* Attitude of Maryland in the Struggle for the Possession of Canada.

Charles Pliny Brigham, of Baltimore, A. B., Johns Hopkins University, 1888. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Some Double Chlorides containing Bismuth.

Charles Edward Coates, Jr., of Baltimore, A. B., Johns Hopkins University, 1887. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Action of Aniline and the Toluidines on Ortho-sulpho-benzoic Acid and its Chloride.

Edwin Grant Conklin, of Delaware, O., S. B., Ohio Wesleyan University, 1885, and A. B., 1886. *Subjects:* Morphology, Physiology, and Geology. *Thesis:* Embryology of Crepidula.

Paul Joseph Dashiell, of Annapolis, Md., A. B., Johns Hopkins University, 1887. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Reaction of Para-diazo-ortho-toluene-sulphonic Acid with Ethyl Alcohol under various conditions of Dilution and Pressure.

Herman Louis Ebeling, of Catonsville, Md., A. B., Johns Hopkins University, 1882. *Subjects:* Greek, Latin, and Sanskrit. *Thesis:* A Study in the Sources of the Messeniaka of Pausanias.

William Snyder Eichelberger, of Woodberry, Md., A. B., Johns Hopkins University, 1886. *Subjects:* Astronomy, Mathematics, and Chemistry. *Thesis:* The Orbit of Hyperion.

Thomas Perrin Harrison, of Abbeville, S. C., South Carolina Military Academy, 1886. *Subjects:* English, German, and French. *Thesis:* The So-called Separable Prefixes in Anglo-Saxon.

Walter Jones, of Baltimore, A. B., Johns Hopkins University, 1888. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Sulphon-phthaleïns obtained from Ortho-sulpho-para-toluic Acid.

Henry Parker Manning, of Taunton, Mass., A. B., Brown University, 1883. *Subjects:* Mathematics, Astronomy, and Physics. *Thesis:* Developments obtained by Cauchy's Theorem, with applications to the Elliptic Functions.

George Frederick Metzler, of Odessa, Ont., A. B., Albert College, 1880. *Subjects:* Mathematics, Physics, and Astronomy. *Thesis:* Invariants and Equations associated with the general Linear Differential Equations.

William McCracken Milroy, of Northwood, O., A. B., Geneva College, 1877. *Subjects:* Latin, Sanskrit, and Greek. *Thesis:* The Participle in the Vulgate New Testament.

Wilfred Pirt Mustard, of Uxbridge, Ont., A. B., University of Toronto, 1886. *Subjects:* Latin, Greek, and Sanskrit. *Thesis:* The Etymologies in the Servian Commentary to Vergil.

George Petrie, of Charlottesville, Va., A. M., University of Virginia, 1887. *Subjects:* History, Political Economy, and Jurisprudence. *Thesis:* Church and State in Early Maryland.

Edward Bennett Rosa, of Wellsville, N. Y., S. B., Wesleyan University, 1886. *Subjects:* Physics, Astronomy, and Mathematics. *Thesis:* Specific Inductive Capacity of Electrolytes.

Edward Alsworth Ross, of Marion, Iowa, A. B., Coe College, 1886. *Subjects:* Political Economy, Philosophy, and History. *Thesis:* Sinking Funds.

Charles Edward Saunders, of Ottawa, Ont., A. B., University of Toronto, 1888. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Researches on the Double Halides.

Sidney Sherwood, of New York City, A. B., Princeton College, 1879. *Subjects:* History, Political Economy, and English. *Thesis:* The University of the State of New York: An Historical Account of its Founding, together with a Sketch of its present Organization and Workings.

Bernard Christian Steiner, of Baltimore, A. B., Yale University, 1888. *Subjects:* History, Jurisprudence, and English. *Thesis:* History of University Education in Maryland.

William Howe Tolman, of Pawtucket, R. I., A. B., Brown University, 1882. *Subjects:* History, Jurisprudence, and Administration. *Thesis:* History of Higher Education in Rhode Island.

Stephen Beauregard Weeks, of Chapel Hill, N. C., A. B., University of North Carolina, 1886. *Subjects:* History, English, and Political Economy. *Thesis:* Religious Development in the Province of North Carolina.

John White, Jr., of Poolesville, Md., A. B., Johns Hopkins University, 1888. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Sulphon-Fluoresceïn and other Sulphon-Phthaleïns.

Westel Woodbury Willoughby, of Washington, D. C., A. B., Johns Hopkins University, 1888. *Subjects:* History, Political Economy, and Administration. *Thesis:* The Supreme Court of the United States.

Arthur Burnham Woodford, of West Winsted, Conn., Ph. B., Yale College, 1881. *Subjects:* Political Economy, Sociology, and International Law. *Thesis:* The Use of Silver as Money in the United States.

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On Commemoration Day, February 23, 1891, the degree of Doctor of Philosophy was conferred on

John Leverett Moore, of Orange, N. J., A. B., Princeton College, 1881. *Subjects:* Latin, Greek, and Sanskrit. *Thesis:* Servius on the Tropes and Figures of Vergil.

Barker Newhall, of Baltimore, A. B., Haverford College, 1887. *Subjects:* Greek, Latin, and French. *Thesis:* The Dramatic and Mimetic Features of the Gorgias of Plato.

Moses Slaughter, of Grinnell, Iowa, A. B., Indiana Asbury University, 1883. *Subjects:* Latin and Greek. *Thesis:* Substantives in Terence.

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## Bachelors of Arts.

Michael Alexander Agelasto, of Virginia.
Delano Ames, of Washington, D. C.
Thomas Stockham Baker, of Baltimore.
Randolph Barton, Jr., of Pikesville, Md.
Daniel Base, of Baltimore.
William Bissing, of Baltimore.
Frederick Foye Briggs, of Baltimore.
Shellman Baer Brown, of Baltimore.
Thomas Morris Brown, of Baltimore.
Sidney Hand Browne, of Baltimore.
Henry Andrews Bumstead, of Illinois.
Frank Kenneth Cameron, of Baltimore.
Malcolm John Cameron, of Baltimore.
George Carey, of Baltimore.
Neilson Poe Carey, of Baltimore.
Abraham Cohen, of Baltimore.
Harry Webster Cooke, of Baltimore.
Arthur Aaron Dembitz, of Kentucky.
Augustus Kountze Detwiler, of Nebraska.
George W. Dobbin, of St. Denis, Md.
William Francis Gallaway, of Baltimore.
George Henry Heitmuller, of Washington, D. C.
Jacob H. Hollander, of Baltimore.
Charles McHenry Howard, of Baltimore.
Reid Hunt, of Ohio.
Charles William Johnson, of Baltimore.
Henry Webster Keating, of Centreville, Md.
William Knower, of Baltimore.
George Lefevre, of Baltimore.
George Milton Linthicum, of Wellham's, Md.
Hugh Sisson Magruder, of Baltimore.
Arthur William McDougall, of New Jersey.
James Farnandis Mitchell, of Baltimore.
Archibald Campbell Murray, of Baltimore.
Charles Fairbank Painter, of Massachusetts.

Alfred Wilmot Pleasants, of Baltimore.
Alfred Magill Randolph, Jr., of Virginia.
William Ferdinand Rittler, of Baltimore.
Charles James Search, of Baltimore.
Alfred Jenkins Shriver, of Baltimore.
James Lawrenson Smiley, of Baltimore.
Samuel King Smith, of Baltimore.
Daniel Gurden Stevens, Jr., of Baltimore.
Charles Morton Stewart, Jr., of Baltimore.
William Stuart Symington, Jr., of Baltimore.
Matthew Möller Johnson Vea, of Wisconsin.
Charles Joseph West, of Georgia.
Charles Francis Woods, Jr., of Baltimore.

On Commemoration Day, February 23, 1891, the degree of Bachelor of Arts was conferred on Whitford Loane McDowell and Edward Louis Watson, of Baltimore.

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# APPOINTMENTS AND HONORS ANNOUNCED, JUNE 11, 1891.

The following appointments have recently been made in this University:

Maurice Bloomfield, Ph. D., now Associate Professor, to be Professor of Sanskrit and Comparative Philology.

William Hand Browne, M. D., now Librarian and Associate, to be Associate Professor of English Literature.

James W. Bright, Ph. D., now Associate, to be Associate Professor of English Philology.

Professor C. T. Winchester, A. M., to be one of the Lecturers on the Donovan Foundation for 1891–2.

Professor R. C. Jebb, LL. D., to be the Lecturer on the Percy Turnbull Memorial Foundation for 1891–2.

Rev. W. M. Taylor, D. D., LL. D., and Rev. R. S. Storrs, D. D., LL, D., to be the Levering Lecturers in 1891–2.

Nicholas Murray, A. B., LL. B., now in charge of the publications, to be Librarian.

J. S. Ames, Ph. D., now Assistant, to be Associate in Physics.

C. H. Chapman, Ph. D., now Instructor, to be Associate in Mathematics.

Hermann S. Hering, B. S. and M. E., to be Associate in Electrical Engineering.

John E. Matzke, Ph. D., to be Associate in the Romance Languages.

W. W. Randall, Ph. D., to continue as Assistant in Chemistry.

Christopher Johnson, Jr., A. M., now Fellow, to be Instructor in Semitic Languages.

E. S. Lewis, A. B., now Fellow, to be Assistant in Romance Languages.

C. C. Marden, A. B., now of the University of Michigan, to be Assistant in Romance Languages.

W. S. Symington, Jr., A. B., to be Assistant in Romance Languages.

Hermann Schoenfeld, Ph. D., of Columbian University, to be Instructor in German.

George H. Nuttall, M. D., Ph. D., to be Assistant in Bacteriology and Hygiene.

Edward Renouf, Ph. D., to be a member of the Standing Committee on the Gymnasium and its Secretary.

J. B. Crenshaw, A. M., to the charge of the Gymnasium.

G. P. Dreyer, Ph. D., to continue in the office of Senior Demonstrator of Physiology.

Theodore Hough, A. B., to continue as Junior Assistant in the Biological Laboratory.

C. L. Poor, B. S., lately a Fellow, and now of the College of the City of New York, to be Instructor in Mathematics.

C. A. Smith, A. M., to be Assistant in English.

W. A. Scott, A. M., to be Assistant in History.

Thomas H. Morgan, Ph. D., to hold, for another year, the Fellowship in Biology founded as a memorial of the late Adam T. Bruce.

Edwin G. Conklin, Ph. D., to occupy the table allotted to this University in the U. S. Marine Laboratory at Wood's Holl.

To be Fellows by Courtesy:

Philip H. Friese, of the Baltimore City College.
Alfred Gudeman, Ph. D.
W. Muss Arnolt, Ph. D., late Fellow.
W. Levering Devries, A. B., late Fellow.
A. Stanley Mackenzie, A. B., late Fellow.
Charles H. Ross, C. E., late Fellow.
Bert J. Vos, A. B., late Fellow.

## Fellowships, 1891–92.

William Wilson Baden, of Baltimore, A. B., Johns Hopkins University, 1881; LL. B., University of Maryland, 1883. *Sanskrit.*

Edward Ambrose Bechtel, of Colora, Md., A. B., Johns Hopkins University, 1888. *Latin.*

Julius Blume, of Münster, Germany, Rheine Gymnasium, 1883, Royal Academy of Münster, 1883–85. *Romance Languages.*

Albert Bernhardt Faust, of Baltimore, A. B., Johns Hopkins University, 1889. *German.*

Simon Flexner, of Louisville, Ky., M. D., University of Louisville, 1889. *Pathology.*

Ulysses Sherman Grant, of Minneapolis, Minn., S. B., University of Minnesota, 1888. *Geology.*

William Asbury Harris, of Richmond, Va., A. M., Richmond College, 1886. *Greek.*

Harry Clary Jones, of New London, Md., A. B., Johns Hopkins University, 1889. *Chemistry.*

James Lawrence Kellogg, of Kewanee, Ill., S. B., Olivet College, 1888. *Biology.*

Elmer Peter Kohler, of Egypt, Pa., A. B., Muhlenberg College, 1886. *Chemistry.*

Paul Erasmus Lauer, of Cleveland, O., A. B., Adelbert College, 1885. *History.*

David Judson Lingle, of Chicago, Ill., S. B., University of Chicago, 1885. *Biology.*

John Hanson Thomas Main, of Baltimore, A. B., Moore's Hill College, 1880. *Greek.*

Frank Jewett Mather, Jr., of Morristown, N. J., A. B., Williams College, 1889. *English.*

Michael Andrew Mikkelsen, of Sioux Falls, S. D., A. B., Luther College, 1886. *History.*

John Dyneley Prince, of New York City, A. B., Columbia College, 1888. *Semitic Languages.*

Brantz Mayer Roszel, of Baltimore, A. B., Johns Hopkins University, 1889. *Astronomy.*

George Owen Squier, of Baltimore, U. S. Military Academy, 1887. *Physics.*

Sydney Grant Stacey, of Kezar Falls, Me., A. B., Bowdoin College, 1889. *Latin.*

Joseph Moody Willard, of Orford, N. H., A. B., Dartmouth College, 1887. *Mathematics.*

## Honors of the Graduating Class.

William Francis Gallaway.
{ Abraham Cohen.
{ William Stuart Symington, Jr.
Henry Andrews Bumstead.
William Bissing.
Charles William Johnson.
Jacob H. Hollander.
Daniel Gurden Stevens, Jr.
Charles Joseph West.
Alfred Jenkins Shriver.

Frederick Foye Briggs.
Randolph Barton, Jr.
Charles Morton Stewart, Jr.
Daniel Base.
Delano Ames.
Augustus Kountze Detwiler.
James Lawrenson Smiley.
Reid Hunt.
Charles McHenry Howard.

In accordance with the regulations the first ten are appointed University Scholars. By special vote of the Trustees the remaining nine are also given Scholarships, yielding free tuition.

## Honors of the First and Second Years in the Undergraduate Courses.

### HOPKINS SCHOLARS FROM MARYLAND.

I. For proficiency in the studies of the first year:

*Honorary Scholarships to —*

Siegmund Sonneborn.
Eugene Lindsay Opie.
Charles Carroll Schenck.
Morris Ames Soper.

*Scholarships to —*

Howard Blake Dowell.
Clayland Mullikin.

II. For proficiency in the studies of the second year:

*Honorary Scholarships to —*

Thomas Richardson Brown.
Charles William Peppler.
Leon Greenbaum.

*Scholarships to —*

James Flack Norris.
William Calvin Chesnut.
Leopold Stern.

### Washington Scholarships.

Edwin Bernhardt Behrend.
Henry Hayward Glassie.

### Honorable Mention.

I. For proficiency in the studies of the first year:
Arthur Fisher Bentley, of Nebraska.

II. For proficiency in the studies of the second year:
John Boswell Whitehead, of Virginia.

These students are ineligible to scholarships, but are worthy of honorable mention as of rank equal to that of the holders of the Hopkins Scholarships.

## RECENT APPOINTMENTS.

J. William Black (A. B., 1888, Ph. D., 1891)—Professor of History, Georgetown College, Ky.

Charles C. Blackshear (Ph. D., 1890)—Associate Professor of Chemistry, Women's College of Baltimore.

Benjamin L. Bowen (Ph. D., 1888)—Associate Professor of the Romance Languages, Ohio State University.

Edwin G. Conklin (Ph. D., 1891)—Professor of Biology, Ohio Wesleyan University.

Paul J. Dashiell (A. B., 1887, Ph. D., 1891)—Instructor in Organic Chemistry, Lehigh University.

Alfred Emerson (Fellow, 1882–83)—Professor of Archæology, Cornell University.

Charles H. Haskins (A. B., 1887, Ph. D., 1890)—Assistant Professor of History, University of Wisconsin.

George L. Hendrickson (A. B., 1887)—Professor of Latin, University of Wisconsin.

Francis H. Herrick (Ph. D., 1888)—Professor of Biology, Adelbert College.

William H. Hobbs (Fellow, 1887–88, Ph. D., 1888)—Assistant Professor of Mineralogy and Metallurgy, and Curator of the Geological Museum, University of Wisconsin.

Arthur L. Kimball (Fellow, 1882–83, Ph. D., 1884, Associate and Associate Professor, 1884–91)—Professor of Physics, Amherst College.

Oliver P. Jenkins (Graduate Student, 1882–83)—Professor of Physiology and Histology, Leland Stanford, Jr. University.

James C. Johnston (A. B., 1890)—Loomis Fellow in Pathology, University of the City of New York.

James E. Keeler (A. B., 1881)—Professor of Astro-Physics and Director of the Observatory at Allegheny City, Pa.

James T. Lees (Ph. D., 1889)—Professor of Greek, University of Nebraska.

Henry P. Manning (Fellow, 1890–91, Ph. D., 1891)—Assistant Professor of Mathematics, Brown University.

W. D. McClintock (University Scholar, 1880–82)—Assistant Professor of English Literature, University of Chicago.

Dice McLaren (Graduate Student, 1888–89, 1890–91)—Director and Agriculturist, Wyoming Agricultural Experiment Station.

J. Leverett Moore (Fellow, 1887–88, Ph. D., 1891)—Associate Professor of Latin, Vassar College.

Ernest M. Pease (Fellow, 1884–85)—Professor of the Latin Language and Literature, Leland Stanford, Jr. University.

George Petrie (Ph. D., 1891)—Professor of History, Alabama Agricultural and Mechanical College.

George M. Richardson (Fellow, 1889–90, Ph. D., 1890)—Assistant Professor of Inorganic Chemistry, Leland Stanford, Jr. University.

Edward B. Rosa (Fellow, 1890–91, Ph. D., 1891)—Professor of Physics, Wesleyan University.

Edward A. Ross (Ph. D., 1891)—Professor of Political Economy, Indiana University.

William T. Sedgwick (Fellow, 1879–80, Ph. D., 1881, Assistant and Associate, 1880–83)—Professor of Biology, Massachusetts Institute of Technology.

Robert B. Steele (Ph. D., 1890)—Professor of Latin, Illinois Wesleyan University.

Bernard C. Steiner (Fellow, 1890–91, Ph. D., 1891)—Instructor in History, Williams College.

William D. Taylor (Graduate Student, 1884–85)—Professor of Civil Engineering, University of Louisiana.

Edward P. Thompson (Graduate Student, 1890–91)—Professor of Mathematics, Westminster College, Pa.

Henry A. Todd (Ph. D., 1885, Instructor and Associate, 1883–91)—Professor of Romance Languages, Leland Stanford, Jr. University.

William H. Tolman (Ph. D., 1891)—Instructor in History, New York City.

Frederick J. Turner (Ph. D., 1890)—Professor of History, University of Wisconsin.

Stephen B. Weeks (Ph. D., 1891)—Professor of History and Political Science, Trinity College, N. C.

Langdon Williams (A. B., 1886)—Instructor in History, Chicago, Ill.

Arthur B. Woodford (Ph. D., 1891)—Assistant Professor of Political Economy, University of Pennsylvania.

# DEATH OF HON. GEORGE W. DOBBIN,

President of the Board of Trustees.

The Hon. George W. Dobbin, President of the Board of Trustees of the Johns Hopkins University, died at his residence, The Lawn, near Baltimore, Thursday, May 28, 1891, at the age of 82.

### Resolutions of the Board of Trustees.

At a special meeting of the Board of Trustees of the Johns Hopkins University, held on Thursday, May 28th, 1891, at 3 o'clock p. m., Hon. C. J. M. Gwinn in the chair, on motion of Mr. Francis White it was unanimously

*Resolved*, That this Board has heard, with great sorrow, that the Hon. George W. Dobbin, its venerable President, died at one o'clock this morning.

He was one of the Trustees chosen by the Founder of this University, and he devoted himself from its opening, first as Trustee, and afterwards as President of this Board, to the advancement of its interests.

The kindliness of his nature, his unfailing courtesy to the members of this Board, and to all in any way connected with the University, won our affectionate regard; while the labors he performed as one of our number, his great personal interest in our work, and his past public services, commanded our admiration and respect.

*Resolved*, That the President of the University is requested to send a copy of the foregoing Resolution to the family of the deceased.

*Resolved*, That this Board will attend his funeral in a body, if such purpose is not inconsistent with the arrangements made by the family of the deceased.

At the regular meeting of the Trustees held June 1, the President of the University communicated the action of the Faculty, (as printed below).

Whereupon it was

*Resolved*, That the proceedings held on May 28th by the members of the Staff of this University upon the occasion of the death of the Hon. George W. Dobbin, our late President, be entered upon the minutes of this Board.

In making this record we renew the expression of our personal sorrow for his loss.

### Minutes of a Meeting of the Academic Staff.

The instructors and administrative officers of the University met in Hopkins Hall at 4 p. m., on May 28th, to decide on some method of giving fit expression to their sense of the loss the University had sustained through the death of Judge G. W. Dobbin, President of the Board of Trustees of the University.

President Gilman took the chair and stated the object of the meeting. Professor Martin was appointed to act as secretary.

Dr. Wm. Hand Browne, who had been requested to prepare in behalf of the Faculty a statement as to its feeling in regard to the death of Judge Dobbin, read a minute as follows:

"At the beginning of the present academic year we met to express our grief at a great and painful loss. At its close we again meet, sorrowing for another bereavement.

"Judge George Washington Dobbin, President of the Board of Trustees of this University, passed away this morning in the eighty-second year of his age.

"While Judge Dobbin's death is felt as a loss by the whole community, to us it comes as a peculiar affliction. A member of the Board of Trustees from the foundation of the University, and for ten years President, its best interests were always his care and study, and to his wisdom and fidelity its success has largely been due. His advanced age, without dimming his intellect or enfeebling his judgment, had ripened and mellowed the experience of a long and active life, and had lifted him, as it were, to a serener height of wisdom and benevolence.

"Few men have ever more clearly illustrated the power of *character*. It was impossible to know him—impossible even to converse with him—without being impressed with the nobility, the purity, and the gentleness of his nature, without recognizing the charming traits that endeared him to all, but most to those who knew him best.

"The close of a life extended beyond the ordinary span did not find him unprepared; and he met the end with serenity and faith, leaving with us who yet remain, sorrow, gratitude, a lesson and a hope."

A few words were said by Professors Gildersleeve, Remsen, Hurd, Martin, Welch and Rowland, and by President Gilman and Dr. Halsted. The speakers had in their varied relationships to the University and the Hospital come in contact with Judge Dobbin in many phases of work, and told how earnest and singlehearted and many-sided his interest in University and Hospital work had been. Those who knew him also in private life paid tribute to his lovable trustworthy character as man, friend, and counsellor.

On motion of Professor Gildersleeve it was unanimously resolved that the statement prepared by Dr. Browne be adopted as expressing the feeling of those present at the meeting.

On motion of Professor Remsen it was resolved that the officers of instruction of the University meet in Hopkins Hall on Saturday, May 30, and proceed thence in a body to attend the funeral services of Judge Dobbin.

### Resolutions of the Board of Trustees of the Peabody Institute.

At a meeting of the Board of Trustees of the Peabody Institute, held June 4, 1891, the following minute on the death of Judge G. W. Dobbin was offered by Mr. S. Teackle Wallis, and unanimously adopted:

The Trustees of the Peabody Institute are deeply pained to add the name of their distinguished associate and cherished friend, the late George W. Dobbin, to the list of those whom death has recently taken from among them. Although Judge Dobbin had already long passed the age, at which he was entitled to rest from those active duties of life which he had so long, so laboriously and so faithfully discharged, he retained, in such an unusual degree, to the last, his mental and physical activity and powers, that he was never behind the youngest of his associates, in the alacrity and efficiency with which his services to the Institute were rendered. We part with him, therefore, rather as one who has fallen beside us, than as an old man who had already halted on the journey.

Although not one of the Trustees originally named by Mr. Peabody, Judge Dobbin became a member of the Board at a sufficiently early date to be largely instrumental in laying the foundations of the healthful and conservative development, which has made the Institute what it is to-day, with all its promise for the future. He was always, from the beginning, one of the wisest and most trusted of its counsellors, as well as among the most valued and useful of its official servants. In this, he did but display and illustrate the qualities, both intellectual and moral, which distinguished the whole of his conspicuous career, and which secured to him, in his retirement from the judicial position which he had filled with so much dignity and ability, for so many years, the gratitude and profound respect of the community whose fullest confidence he had always enjoyed.

It would not become the Trustees, in paying this tribute which they feel so justly due to the memory of Judge Dobbin, as one of their own brotherhood, to do more than allude to the services for which, in other positions, his fellow citizens owe him so much. These are sure to be commemorated and cannot easily be forgotten. It is simply the desire and purpose of the Board, to place this testimonial of their deep regret and affectionate and grateful appreciation and remembrance upon their own records, where the services of their venerated and lamented associate have already been made part of the history of the Institute.

### Remarks of President Gilman.

On the occasion of the public ceremonies of the conferring of degrees upon the graduates of the year, June 11, 1891, President Gilman spoke as follows:

It is but a fortnight since the oldest member of this academic body, the venerable President of the Board of Trustees, was removed by death, while the clearness and strength of his mind were unabated, and his usefulness as a counsellor was unimpaired. We shall mourn for him in the months and years that are to come as we are mourning for his colleague in the Board and on the Bench, the late Judge Brown. Others will take the place of these two Trustees, and will discharge their duties with the like fidelity, but none will ever have the same relation to this seat of learning. Those who are gone were men of liberal education, of judicial experience, selected by the founder and regarded by the entire community with affection, honor, and trust. On one, as chairman of the Executive Committee, and on the other as chairman of the Trustees, great responsibilities rested. They were ornaments of the University, and their presence gave dignity to all our celebrations, but they were more, far more than ornaments. They were pillars of the house. As office-bearers in this republic of letters, none were more diligent, none more wise, none more unselfish. The remembrance of such men cannot be sad to the University even in the freshness of our loss. It is a delight to recall their services and character, and to proclaim aloud our gratitude for the part they have taken in the development of this young University.

Judge Dobbin had a mind of unusual brightness and versatility. He could do many things and do them all well. His profession was the law, and the distinction which he won at the bar gave him long ago a seat upon the bench. But he loved to employ his leisure in scientific reading and experiments. His hands and fingers were skillful. He was a good worker in wood and metals. He loved to observe the movement of the stars and he owned at one time several astronomical instruments. He was an excellent photographer. The progress of chemistry, physics, astronomy and biology he watched with an intelligent and comprehensive interest. He delighted in the entertainment of children. He was fond of music and of stories. Late in life he made himself familiar with the ideas of modern medicine and antiseptic surgery. Every new invention appealed to his curiosity. He liked to witness the action of machinery and to trace as far as he could the principles that underlie all new designs for the promotion of mechanical and electrical arts.

If these traits are borne in mind the incident that I am about to relate may be of general interest. On the day of Judge Dobbin's death, the faculty of this University met in Hopkins Hall to express their sorrow and to make arrangements for the funeral. Their grief found fit expression in a minute which showed their admiration, affection and respect. But this tribute, apt as it was, could not express all the sentiments of those who were present,—so one and another and another stood up in that room where we had often seen his face, and in a few words that came from grateful memories and from hearts sad with the sense of bereavement, described to his colleagues some trait in the Judge's character, some incident in his life. The librarian and the professor of Greek referred to their long acquaintance with him which began in the days before the war. The superintendent of the hospital eulogised his interest in the work of that foundation. The professor of chemistry recalled his first interview more than fifteen years ago. The professors of physics, biology and pathology gave illustrations of his close attention to their work, and of his constant sympathy. The professor of surgery alluded to an instance which he had witnessed, of the wonderful composure and serenity of Judge Dobbin under circumstances of extraordinary trial. Every one spoke as if a father had been taken away. I do not think I have ever heard in public so many and so spontaneous expressions of respect for a departed friend, mingled with sorrow so sincere.

As the days pass on, other tributes to the excellence of this honored man will be made public. The Trustees of the University and of the Peabody Institute, for example, have placed on record their estimate of his services. But no one has yet, so far as I am aware, done full justice to the character of Judge Dobbin considered as a citizen. Let me therefore add a few words upon this point. He loved to serve his fellowmen. He delighted to lend a helping hand to every enterprise that would benefit the public. Office, he regarded as a trust. He had no hidden purpose, no selfish ends, no petty aspirations, no animosities, no jealousies. Everywhere, in his action as a member of a board or as director in a corporation or as a private citizen, he voted and he spoke for that which he thought right. Yet he never failed in courtesy toward his opponents, nor in deference to those whose honest opinions differed from his own. The optimism of his temperament never led him into extravagant sentiments or boastful expectations. He was serene and calm in the hours of trial and difficulty, gratified and exultant when everything went well, patient in perplexities, painstaking in routine, absolutely free from self-seeking, generous in his commendations of all his associates and yet with a rare discrimination as to the peculiar characteristics of each one, which made his praises the more grateful. Those of us who knew him only in his later life were impressed by the fairness, the clearness and the wisdom of his judgment. To me he was a court of last appeal, and to him I carried many a difficult question for a final decree.

A community, a city, a state, a university which brings such men to the front and keeps them there, is worthy of such sons. If the paths of political preferment are but rarely open to them, the philanthropic, the scientific, the educational, and the religious institutions of a city like this afford delightful and rewarding opportunities for usefulness. Indeed, it is one of the best signs of the times that here as elsewhere young men of character, education, and of inherited interest in American institutions are ready for the places of trust and honor that from time to time become vacant. As the old men of Baltimore pass away, honored and revered by their fellow-citizens, young men are found prepared for the responsibilities, instructed and inspired by the examples of those that have gone before.

It is not surprising that one, whose life had been an embodiment of faith, hope and charity, was ready and waiting for the call that summoned him to leave the pains and weariness of four-score years and two. He cared no more for the "strength" that "is labor and sorrow." If it be true, as an ancient philosopher has said, that the end of life is accomplished when men engage in business rightly and spend their leisure nobly, then here was nature's nobleman.

One precept of Judge Dobbin's may appropriately be engraven on a memorial tablet and placed upon the University walls. In the first interview that I had with him, in 1874, we discussed the possibilities of a university in Baltimore. I have never forgotten the assurance then received from him. "Let this new foundation aim at the ideal" was the sentiment that he uttered. Even now I can hear the quiet enthusiasm with which he gave me this injunction:—"Never be satisfied with anything but the best." This was the doctrine of his life; this the lesson of his official chair. This is the inheritance that we hold from Judge Dobbin,—"Never be satisfied with anything but the best."

### Biographical Note.

George W. Dobbin was born in Baltimore, July 14th, 1809, and was educated at St. Mary's College. He studied law in the University of Maryland, reading in the office of the late David Hoffman. During his time of study he showed such brilliancy of mind and industry that upon his admission to the bar Mr. Hoffman offered him a partnership. After the death of Mr. Hoffman Mr. Dobbin formed a partnership with Mr. Wm. A. Talbott, which lasted for nearly forty years. Although engaged in the active pursuit of his profession, Judge Dobbin found time to devote to the best interests of his native city. Early in his life he was interested in the organization of the State Militia. He was chairman of the judiciary committee of the Constitutional Convention of Maryland in 1867. He was one of the founders of the Maryland Historical Society; was for many years one of the Board of Visitors of the Maryland Hospital for the Insane, and was a Trustee of the Peabody Institute, at the opening of which, he was selected to deliver the address, Mr. Peabody, the founder, being present. He was also at one time a director of the Baltimore and Ohio Railroad, and President of the Susquehanna and Tidewater Canal. At the time of his death he was a regent of the University of Maryland, and Dean of its Faculty of Law; a member of the Board of Trustees of the Johns Hopkins Hospital, and President of the Board of Trustees of the Johns Hopkins University. In 1867 he was elected Judge of the Supreme Bench of Baltimore, and during his term of office—extended over the age of seventy by act of the Legislature—his decisions were regarded as models of wisdom, clearness and impartiality, and his official actions upheld the dignity of his office. Few men have received more marks of public trust and confidence, and none have more deserved them. He leaves behind him a name in which his descendants must feel just pride.

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In compliance with the directions in a memorandum of instructions given by Judge Dobbin, a few days before his death, Mr. Robert A. Dobbin has sent to the University the following books and papers, viz.:

Three volumes of the manuscript records of the meetings of the "Tuesday Club," a society in Annapolis about the year 1750, and a medal of the "Club."

The letter of Henry Clay accepting the nomination for the Presidency of the United States.

A commission signed by John Hancock in the year 1781.

The original of John Quincy Adams's "Ebony and Topaz" toast in his hand-writing.

## CONFERRING OF DEGREES.

The public ceremony of conferring degrees was held in the Mt. Vernon Place Methodist Episcopal Church on Thursday, June 11, at 5 p. m.

The Trustees, Faculty, and Candidates for Degrees assembled at a quarter before five o'clock in the lecture room adjoining the church and proceeded to seats reserved for them.

The exercises were opened with prayer by Bishop Randolph, of Virginia. The first address was by President Gilman. His remarks upon the death of Judge Dobbin are given in another column.

An address to the candidates for degrees was then delivered by Associate Professor Kimball. He was followed by Bishop Randolph. Mr. C. Morton Stewart also spoke briefly.

The candidates for the degree of Bachelor of Arts were presented by Professor Griffin, who spoke as follows:

It is my very pleasant duty to present, for admission to the first grade of academic honor, the largest class ever graduated at the Johns Hopkins University. The degree of Bachelor of Arts is to be conferred at this time upon 48 persons; we may properly add to this number two who received the degree on the 22d of February last, making 50 Bachelors of Arts of the year 1891. The largest number in any previous year is 36—which was the number both last year and the year before last. The class upon which the honors of the University are conferred to-day by no means rests its claims to consideration upon its size; yet this is a circumstance not without interest.

It will be observed, in looking at the printed list, that a majority of this class, more than three-fifths, indeed—32 out of 50—are residents of Baltimore. The list of candidates for the Doctor's degree, on the other hand, contains the names of only five Baltimoreans. This difference illustrates the intimate relation of the undergraduate work of the University to the city. Through its higher courses of instruction, the Johns Hopkins University is exerting a national, a cosmopolitan influence; its collegiate work is relatively local, intended primarily to meet the needs of the community in which it is established. An increasing number of collegiate students will, in all probability, be attracted here, in years to come, from a distance, but in this department of its work the University must always find in the city of Baltimore its most natural constituency. It will be our earnest endeavor to make its teaching and its discipline serviceable, in the utmost possible degree, to the young men resident at its doors.

The selection of studies made by the graduating class is different from that ordinarily made by classes, in that the humanities receive a decided preference over the sciences. I need hardly explain that under the system of "groups," as they are termed, established here, each candidate for the Bachelor's degree receives instruction in those fundamental subjects which are believed to be essential to a liberal education. Ancient and modern languages, mathematics, the physical and natural sciences, literature, philosophy, and history—these are taught to every regularly graduated student. But after provision has been made for these essential interests, a large liberty of election remains, and this has been exercised by the present class in the way that has been stated. Ten men have chosen the 1st, or classical group of studies; fourteen the 6th, or historical; seven the 7th, or modern language; making 31 as against 19 in the various scientific groups. Last year the humanities and the sciences were evenly balanced—18 on each side; the year before last the sciences had the advantage—23 to 13. The students ordinarily distribute themselves pretty evenly between the two great classes of subjects.

One of the members of the class has kindly calculated for me the average age of the 48 men who take the degree this afternoon. This proves to be 21 years and 7¼ months. The result is of interest, as showing that the complaints made of the excessive age at which the Bachelor's degree is obtained at some colleges are not applicable here. The average age of the graduating classes at Harvard is 23 years and about 1 month. Such prolonging of academic residence is undesirable, especially in the case of students entering professional life; many parents can ill afford to have their sons dependent on them until the 26th or 27th year. A young man who has completed his undergraduate training when he attains his majority, is in excellent position, either for entering upon business life, or for proceeding to further studies. It is a matter of satisfaction that it is found practicable to graduate from our collegiate courses at so reasonable an age.

I cannot proceed to my last official act, in connection with this class, without expressing to them the cordial appreciation which all, who have been charged with their instruction, have, of the courtesy and fidelity with which they have fulfilled their duties as students of the University. The record of their work is, in all departments, a particularly good one, and it is a peculiar pleasure to recall, in these closing moments, the many acts of consideration and good will, by which they have made the relation of teacher and pupil so agreeable. Lord Bacon's estimate of the value and uses of liberal studies is, my friends, familiar to you: "Studies serve for delight, for ornament, and for ability." We confidently expect that you will prove, in all your after lives, the truth of this saying. We believe that the knowledge which you have here acquired, of the order of nature and of the history of man, the resources you have here gathered of learning, and taste, and intellectual sympathy, will be to you a profound and ever increasing source of personal satisfaction; that into all the intercourse of life, into all your relations of friendship and society, these studious acquisitions will enter as an ornament of grace; and that you will go forth into the world of practical action, not as "expert men," merely, able to "judge of particulars, one by one," fertile in shifts and in expediencies, but with some genuine hold upon principles, idealists, in the worthiest sense of that term—ready to submit questions of conduct, personal and social, to the arbitrament of absolute standards of justice, honor and truth. Those "unwritten, unconstraining laws of virtuous education," which Milton declares to be "the bonds and ligaments of the commonwealth," we look to see effective in your careers. We shall follow each one of you with lively hope, and with affectionate interest.

Mr. President, in behalf of the Board of Collegiate Advisers, I have the honor to present to you, as candidates for the degree of Bachelor of Arts, the persons whose names I am about to read.

[A list of the Bachelors of Arts is given on page 145.]

Professor Remsen presented the candidates for the degree of Doctor of Philosophy.

[A list of the Doctors of Philosophy is given on page 145.]

After the degrees had been conferred by President Gilman he announced a number of recent appointments and honors. [A list of these is given on page 146.]

A reception was given in the evening by the Trustees and Faculty to the graduates of the year and their friends, in the Gymnasium. A company of over five hundred was present.

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